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August 1985

Way of the Exploding Fist!



MATCH OF THE DAY

— sports games reviewed
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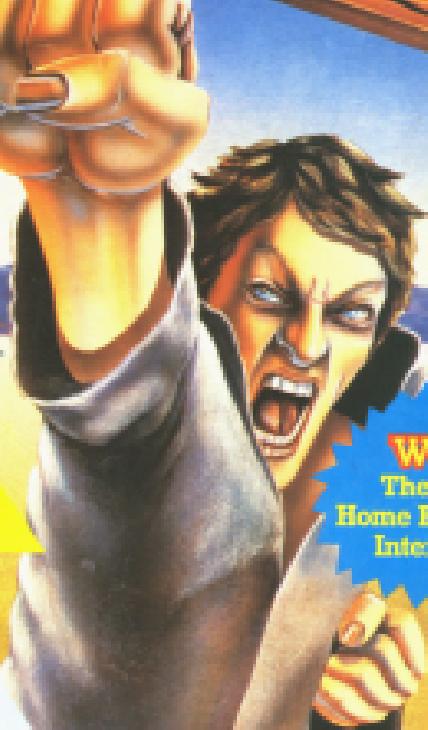


COMPUTER
GRAPHICS
— taking the
64 to
its limits



HARDWARE
REVIEW

— C.Itoh's Ritterman C+



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The Box
Home Robotics
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Commodore Show Report



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Seiko Watch Terminal

The electronic "notepad" on your wrist

Editorial

WITH NEW men at the helm and new products coming into the shops, Commodore's fortunes seem to be improving. Attendance at the June show was barely down on last year, although many companies such as Rabbit and Rambit are no longer with us, so the number of exhibitors was significantly lower. More importantly, reaction to the C128 was good — at least from the point of view of journalists and the public. The Commodore engineers seem to have learned to criticisms of the 64 and C16 Plus/4, and come up with a machine which nearly matches the possible pitfalls of exceeding the 64 while offering many unexpected features too. At the same time, the future of the 64 seems to have safeguarded by some interesting marketing moves.

All that remains is for a final push for the C128 to be set. We would guess at C16R, which makes the machine, monitor and disk about a fairer competitor. Commodore's greatest challenge — and one on which Haynes and Wilcock will have been putting in a lot of work — is to get convincing the public that the system will sell to day public, who are reluctant to commit a large investment to a single computer system unless they are convinced of the quality of the machine and its back-up service.

EDITOR Christopher Jenkins **PRODUCTION EDITOR** Barbara Hayot **EDITORIAL SECRETARY** Geraldine Scott **GRDP** P. **ADVERTISING DIRECTOR** David Lake **ADVERTISING MANAGER** Simon Langton **MANAGING EDITOR** Gordon Goss **TELEGRAPHIC DIRECTOR** David Scott **TELEPHONE CALL DEPT** 01-730-1146 **TELETYPE** 01-730-1146 **Commodore Horizons**, 1210 Long Newport Street, London WC1H 7NP, UK. **ADMISSIONS** £1.00 per issue. **Commodore Horizons**, c/o Business Press Int'l., 201 East 42nd Street, New York, NY 10017. **SUBSCRIPTIONS** UK £10.00 for 12 issues; overseas surface (excluding US and Canada) £14.00 for 12 issues; US and Canada £15.00 for 12 issues.

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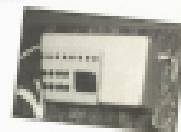
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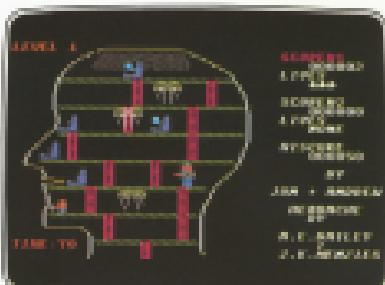
ABC

SUBMITTING ARTICLES Commodore Horizons invites readers' contributions, other program listings or articles. Articles should be typed, double spaced with a wide margin. Where possible programs should be submitted on cassette or disk with a printout on plain white paper. Please keep a copy of your submission — do not send your only copy. Please enclose a s.a.e. if you wish your submission to be returned. All submissions must be your own original work.

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 - 118 **EXCUSES** *Anecdote*
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 - 119 **HEADACHE** *Anecdote*
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 - 120 **DEB** *Anecdote*
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Section 8.2: Summary

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SYSTEM 3 SOFTWARE

ICPUG southeast

I should like to take the opportunity to introduce our user group, the South East Regional group of ICPUG. Our membership covers BA, Vic and PET users in London and the Home Counties. We meet at the Charter Gardens School, Biggin Hill, every Thursday, and produce a monthly newsletter.

If you would like more information about the group, I can be contacted on Project, Room No. 84803588, or Computer, ID 44956. David Peters
89 Chippenhouse Road
Oxted
Surrey

THANKS FOR the information, David — we're always pleased to hear from user groups with news of their activities.

Name and address

SOME OF your more loyal readers may remember a program I submitted called "Address Book", published in

the August 1988 edition, when Commodore Horizons had a different cover (and price), but what's complaining? Anyway, I seem to have overlooked one aspect. When you have finished typing in the program, RUN it, entered all your addresses and saved them to tape, then want to load them back and add some more, you find that you can't because there's no CONTINUE option on the menu. I have written a routine to overcome this problem — just add these lines to the original program.

HS PRINT * ICDH & CDT

ADDRESSES:
HS HSX-#* THEM X=8
GOTO 200
200 X = VAL (SSC IF X <1
OR X > 6 THEN 350
300 ON X GOSUB 250, 310,
330, 350, 360, 380
300 A = X + 1 GOTO 220
220 Print
310 Print
330 Print
350 Print
360 Print

WE'RE PLEASED to publish this correction to celebrate the anniversary of the original listing. Thanks, Chris — don't make us wait another year to hear from you again!

The Staff naff?

HAVING JUST completed Ultimax's Staff of Karmas, I was appalled at the way the game ended. It took me about four months of sleepless nights and agony, and all I got was a border flick and a small message displayed at the bottom of the screen saying "Congratulations — you have destroyed the Staff!"

I don't think that this is a just reward for all the agony I have caused me. The other previous day I bought Ultimax, but after completing Staff it isn't giving me much determination to try to complete it. If anyone wants to swap some information on Staff for some on Enclosed, I will be more than happy to do so. Am I the first to complete Staff? David Ashok
16 Oak Avenue
Abingdon
Oxon

YOU'RE NOT the best, but neither are you the only reader to complain about the staff conclusion of Staff. Come on, Ultimax — if you can write such brilliant programs, can't you figure out a satisfying end to them?



Show-stopping C128

WHILE THE old Commodore Computer Show was being delayed open by scantly-clad Bond girls, the uncharactistically coy Nick Romeo and Paul Wright were hiding their individual assets at the previous press conference. The question on everyone's lips, the price of the forthcoming C128, was left unanswered as the Commodore duo announced plans to revitalise sales of the 64 through value-added packages.

Paul Wright, chairman of purchases for the UK



Interest from the public was certainly good — at 15,000, attendance was only to speculate on how many companies would still be around to support the 128 when it reaches the shops in August. Many names from last year's show had disappeared — Apple, Atari, Sinclair to name three — and major names such as Activision, U.S. Gold, Ocean, Virgin and others declined to attend, despite fairly dismal rumours that the exhibitors were offering free stand space to big names.



The result was that the show half the size of last year's with only one floor of the HammerSmith Necropolis taken up, was dominated by the preview — and "secret" — as stated in some of the show's pre-publicity — of the C128 and related peripherals. As promised, the C128 will

feature three operational modes: 64 mode, in which it is 100% compatible with all 64 software and hardware; 128 mode, in



Nick Romeo, C128 project manager and marketing director

which it operates in Basic 7.8, with a forty or eighty column display; and C64 mode, in which fully-fledged professional business software can be used. Current speculation is that the C128 will cost around £349, with the 3511 disk drive and 1982 monitor at around £399 each. The C64A, with both in disk drive, will probably be released after the 128, at around £399.

To boost sales of the 64 and related peripherals, four "value-added" packages are to be

released.

The CRM64, data recorder, joystick and International Soccer cartridge will sell for £199.

The 1541 disk drive, Computer monitor, year's subscription to Computer, and Encyclopaedia based processor will sell for £229.

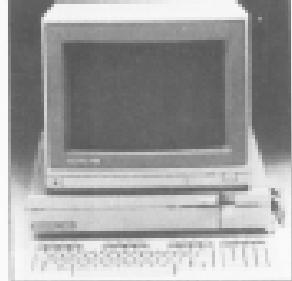
The 1441, 1675-804 printer and Encyclopaedia based processor will sell for £399.

The Plus 8, 1541, MP3-804 and Images 3.2.1 software suite will sell for £449.

The C64 starter pack will continue to be sold, and purchasers of this or the 64 starter pack will be eligible to claim a three-night holiday for two at any one of a range of 200 hotels in Europe.

The various models of PC

were also on show, together with new peripherals for the 64/128 including the 1541, a 3½ inch standard disk drive with 1541



compatibility and 158K capacity. The 1541 hasn't yet been allocated a release date — Commodore plans to wait and see whether the 1541 market demand takes off before deciding on the 1541's future.

Licensed to thrill

THEIR WAS plenty to see at the show apart from sports games and music — Electron launched the board game *A Turn In A Time*, with the help of Desmond Llewelyn, alias "Q"; and actress, Nita Clever and Magic Dreyfus.

More classic showed the Chess Game, an arcade of lots at a chess board.

U.S. Gold's demonstrated the many versions of *Psychedelia* and the popular "hair" games, though there was no sign of the preview Beatles.

MicroGen's Land of Holes, a multi-screen arcade adventure, is the latest 64 game from this company, also well-known for C64 products.

C64 both showed the C+ and other Commodore compatible printers.

Computer Peripherals showed the Prism Technik video digitiser, which converts video signals onto disk and prints out in colour or mono.

Hagan Electronics displayed the Quake Data Drive and the Agnosys 80 thermal printer.



pointed out, is that "it isn't the size and shape of a bread bin" — the Falconsoft 2000 is around half the weight of a 1541. The product should retail here for around £199. Also going well on the Hagansoft stand was the revolutionary Hagansoft Joystick, a miniature joystick with two fine buttons but no handle — the eight-position controller is set directly onto the base and is thus practically irreversable.

RAM Electronics showed the Data Mouse, an optical device for the 64/128 featuring improved icon-driven graphics software.

We'll be looking at many of the more impressive new products from the Commodore Show in this issue, with more to follow next month.



Commodores play music and sports

SOFTWARE at the Commodore show was dominated by the themes of music and sports.

"Commodore International Games", a follow-up to Soccer and Basketball, was launched with the help of Melkiori-Kookaburra, international Roger Kates. The game, which features perspective graphics and realistic sound effects, will be £3.99 on cassette.

England Test cricketer Graham Gooch was present to promote Richardson's Test Cricket. He signed autographs before climbing off to bat for Essex. The game uses the £9.99 on cassette version, and release is planned to coincide with the start of the first Test.

Wadding presented the forthcoming soccer game Head-A-Hole.



A follow-up to the highly praised hockey game Stick Shot, once completed, Head-A-Hole will feature full voice speech and, for the first time, songs. It's also the first soccer game which allows you to take penalties.

Melkiori-Ham's Map of the Exploding Fish was making lots of noise, so the combination of quiet business software publishers — it's a realistic karate simulation which is reviewed in depth elsewhere in this issue.



Amiga showed the boxing game Knockout, and Jack Charlton's Match Fishing.

Holiday Rev showed the C64 conversion of the panel game Blaster, as well as the C16 and 64 titles including Cliff Fighter and Agua Buena.

On the music front, the show focused to the sounds of SID chips, synthesis and sound samples as several exhibitors battled for the ears of the public.

"Harbisonsoft" Distribution showed the Autographs Microsound sample, which operates with a special music keyboard and an analogue-to-digital interface to "sample" real sounds through a microphone, and play them back at any pitch with a



wide range of editing options.

"Supeword" demonstrated the Microsoft digital sampler, which features sound sampling and editing facilities, with the added bonus of a MIDI interface, the model £299, and the much-praised Music Master.

"Jovis' Music Computer System" looked ready to go the Supeword's ideas, along with a number of Casio and Roland MIDI-equipped musical instruments, for a spectacular rendering of a Bach piece. The Music Computer System, reviewed in our June issue, is a hardware and software system for controlling MIDI units from the 64, featuring accurate musical notation and print-out facilities.

"Autogro's Music Master" is primarily a speech sampling and reproducing device, but in its Voice Harp mode it can be used to compose and play 64 music by listening or whistling into the built-in microphone.

"Island Logic's Music System" was on show too — exclusively previewed in our June issue. The Music System is an synthesizer, composition and MIDI control package for the 64 using unique Macintosh-like control icons.

"Commodore" itself showed off the new packages from Music Sales, including the Music Master keyboard series, the Pleasing albums (reviewed last month), the Sound Studio speech and composition package, which comes complete with a booklet written by synthesis guru Crombie, and the Sampler, which, when released will sell for around £69.99, and include echo and harmonizer routines as well as sampling and MIDI compatibility.

Amiga news

showing no specific technical details, Commodore UK general manager Nick Beasy said he was prepared to "lay a lot of money" on the Amiga machine being available in the UK in January. Speaking at the previous press conference at the 16th Commodore Computer Show, Beasy would not speculate on the price of the machine. However, following the Chicago Consumer Electronics Show, some details of the specifications have emerged.

The Amiga will be a 32MHz-based machine with 2MByte RAM expandable to 16MByte. The POKI ROM includes a BMP — window, icon, mouse operating system — called Initiation. There's also a unique click-operating system, Amiga DOS. The machine includes a built-in monitor and single click drive.

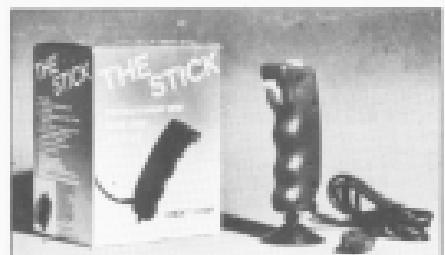
The Amiga will be notable mainly for its graphics and sound. Three special chips, Agnus, Daphne and Portia handle graphics, animation and sound production. The display

of less 60 or 80 columns, hardware sprites, 4096 colours, and 128 screen memory with resolution up to 640x480 pixels. The sound chip gives four sound channels over nine octaves.

The disk drive operates with 3½ inch disks with 180K formatted capacity. The Amiga also has a detachable keyboard, two-button mouse, joystick ports, RS-232 and Centronics interfaces, RGB, TV and stereo audio outputs, and RAM expansion socket.

A range of printers, floppy disk units, a hard disk unit starting up to 150M, a video controller and "frame grabber", and a MIDI music interface are also in the planning stages.

Aimed at a broad spectrum of users in the home, business and creative areas, the Amiga will be a significant launch for Commodore worldwide. The most important factor will undoubtedly be the price, and at a reported dollar price of \$995, the Amiga may well make it to the UK at around the £1500 mark.



THE STICK from Lightwave Action is a revolutionary hand-held device with a 5-pin DIN connector. Operating by memory matrix, The Stick is an unique game controller and is guaranteed for at least 1000 hours of use. Price £12.95 (VAT £15.56).

Faster 1541

USERS OF THE usual-paced 1541 disk driver will be pleased to hear of Freedumb Micro's new Quickdrive + cartridge. Requiring no internal user modifications, an additional software to operate, the cartridge speeds up load and save by a factor of four or five, allows disks to be formatted in ten seconds, allows unprotected

disks to be backed up in 3½ minutes, and adds 1000 commands such as **FORMATDISK** which loads and displays a directory, and **SHIFTPRINT** which executes the equivalent of **LADPROM**.

Centronics now software which will print the CGA graphics set, and a new word, very included on the cartridge.

All this for only £99.99. For more details talk to Freedumb on 081-4561561.

Scotch disk



SCOTCH THE SELLEIA giant IBM has announced a new range of computer products under the Scotch label. Already well-known the video and audio tapes, Scotch has now come up with a new global product design theme intended to prevent brand confusion.

Above from a new selection of video and audio tapes, Scotch will be producing computer cassettes and floppy disks, kick-starting them with a major marketing campaign. The products include 3½ inch floppy disks, available in single or double density, single or double-sided, single or double-sided.

In packs of two, five and ten; a 1½ inch hard cleaner; and 1½ inch diskettes, sold in packs of one and five, single or double-sided. These disks would be compatible with the Commodore 1680 disk drives seen at the Commodore Show.

Scotch computer cassettes, in three lengths, C16, C15 and C20, complete the range. The diskettes are covered by a lifetime guarantee, and the whole range should be in the shops by September.

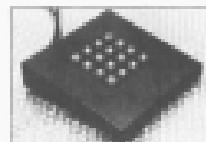
Contact: IBM UK PLC, 264 Horse, PO Box 1, Bracknell, Berks, RG14 8LS.

Datapad redesigned

VOLL-MAC'S: Datapad has gone through a redesign which aims to make it more commercial. The user's plastic case has been replaced with a low-profile metal case with non-slip feet, and new moulded keycaps have been fitted.

The 16-way programmable keypad plugs into the 64's joystick port, and comes complete with software on cassette which enables the user to program the alphanumeric value of the keys. The predefined keys are shift, lower case characters, so they

operate as soon as the shift lock key is switched on.



The Datapad retails at £14.95. Contact Vollmac, Park Drive, Babbacombe, Devon, TQ10 8HE.

It's for yoo-hoo!

A COMMUNICATIONS system for 64 owners using the QLL/Faxcom communications pack is now available from British Telecom. Dialsoft, a service of BT Fax, offers a range of facilities including one-on-one mode, data

and program transfer, and built-in shadow code SAWE routines. The current services for the 64, Spectrum and BBC models all use the same line protocols, enabling owners of the various machines to exchange data. Future plans for the service include the development of a simple wordprocessor which will allow messages to be transferred via electronic mail.

The Dialsoft software can be downloaded via the phone lines. For more details, phone Gloucester 0284 8068.



Rupert's come-back

BY THE END of July, Rupert Bear fans everywhere will be able to play the game Rupert and the Beaver's Party on the 64. Priced at £7.99, the Argus Software game is described as "challenging, addictive and jolly good fun" — it meets all the existing standards laid down by the Daily Express."

The arcade adventure shows Rupert making his way through the eight levels of the castle, following the trail to the party left by his friends. Toys, both helpful and hideousome, magic sceptres and roundhouse beers are encountered along the way.



The game is being released to coincide with Rupert's 60th birthday celebrations — though the little devil doesn't look a day over six.

Contact: Argus Software, Liberty House, 222 Regent Street, London W1, 01-58 0666.

FULL IMPACT on the October Commodore Show are now available. The Shows, on the 2nd and 3rd October (Wednesday and Thursday) at the Alexandra Palace, London, will feature stands from over 100 business systems,ware houses, competitions, exhibitions, user organisations, discuss sessions and more. For information on how stand prices and bookings arrangements, contact Computer Manufacturing on 01-580 782.

Danish goodies

A NEW RANGE of computer accessories from Denmark is about to hit the UK. The AM range is to be marketed by Nordic Soft Components Ltd, and is to be available through computer specialists.

The range includes keyboard cleaners, disk and hard cleaners, protective disks, mailing boxes, computer carriers and a joystick. For details contact The Publicity Department on 021-634 9933.

Here's Max

THIS IS MAX, hero of the forthcoming educational program Rumper Room from Beyond Rumper Room. It is being advertised as the first preschool software, which, with the help of a supervising parent, presents the alphabet and simple words in an entertaining way. Rumper Room costs £19.95 on cassette for the C64/64.



Dennison cleans up

THE PERFECT solution to a grubby computer — Dennison Manufacturing has announced the CRU cleaning kit. The kit includes three special cleaning solutions — a screen cleaner, general surface cleaner and anti-static spray — and comes with spray pump and a supply of fibre-free cleaning cloths. The solutions are also available in separate kits, as part of the Elephant range of computer supplies. Dennison claims that, by regular cleaning, heat building-up, deteriorating print quality, short bursts caused by dust, and static discharges leading to data loss can all be avoided. Contact Dennison at Colonial Way, Tunbridge Wells, TN2 7AJ.

commodore show

For more information contact:
Computer Manufacturing
100 Newgate Street, London EC1A 7AA

- COMMODORE 64 -





Elite – the ultimate, award-winning space challenge.

Once the privilege of BBC and Electron owners, Elite now takes a giant leap forward – onto the COMMODORE 64. (There'll be versions for the 48K Spectrum and Amstrad soon).

OUT IN DEEP SPACE, THESE REVIEWERS FACED THEIR TOUGHEST TEST.

Already tested by the intrepid explorers of the Commodore press, here – breathlessly – are just a few words from their advance battle reports.

"The Final Frontier?"

(Mega Game, Your 64, June 1985).

"My favourite... as absorbing and challenging as the original."

(Commodore Horizons, June 1985).

"To explain every element of Elite would take a book... you'll run out of energy long before Elite runs out of things to show you."

(Commodore Computing International, June 1985).

"A brilliant game of blasting and trading... truly a mega-game...the game of a lifetime."

(Gold Medal Award, Zzap! 64, May 1985).



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GOLD
AWARD

Top Twenty CBM 64 Games

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- 2 Softaid
- 3 Petrapop 3
- 4 Harbiner's Gummy Plum
- 5 Glitterwurm
- 6 International Basketball
- 7 Theatre Europa
- 8 Impossible Mission
- 9 Native 4D
- 10 Goofy's Revenge
- 11 Karateka
- 12 County Bob Strike Back
- 13 On Court Tennis
- 14 Gastron
- 15 Invader
- 16 Jonah Berington's Squash
- 17 Tolltolls
- 18 Rock Horror Show
- 19 On Field Football
- 20 Blagger goes to Hollywood

- 1 Sedney/US Gold CB 8.99
- 2 Softaid
- 3 CBS/Epyx CB 8.99
- 4 Mitre-Gem CB 8.99
- 5 Beyond CB 8.99
- 6 Commodore CB 8.99
- 7 PSS CB 8.99
- 8 CBS/Epyx CB 8.99
- 9 Microsoft CB 8.99
- 10 US Gold CB 8.99
- 11 Virgin CB 8.99
- 12 Big Blue/CB 8.99
- 13 Activision CB 8.99
- 14 Palace CB 8.99
- 15 Ultimax CB 8.99
- 16 New Generation CB 8.99
- 17 Comtronic/Intergen CB 8.99
- 18 CRA CB 8.99
- 19 Activision CB 8.99
- 20 Alligato CB 8.99



Bubblers

- 1 Brian Jackson Supervisor
- 2 Jump Jet
- 3 Elektarist
- 4 Jet Set Willy 2
- 5 Murder by the Dozen

- Mamech £7.99
Animaq £9.99
Mastertronics £7.99
Software Projects £9.99
CBS £17.95 disc

Top Ten CBM 64 'Non-games'



- 1 Mini Office
- 2 "80" East Central
- 3 Business Brain
- 4 Hot Dogs 'n' More
- 5 Weather Lightning
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- 7 Mac '85 East Central
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- 2 BMX Racers
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- 4 Zanger Wars
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- 1 Radiation
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- 1 Melody the Bratka
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Our recent readers' survey indicated that most of you wanted to see a games chart — but we've gone one better than that. RAMC's charts, compiled from 300 independent retailers, are the most accurate and unbiased available, and cover CBM 64 games, non-games 64 software, and the top five C16 and Vic 20 games, plus those titles "bubbling under" the charts.

SOFT★HITS

A jump to the left...

An odd choice of subject after a computer game, you might think — because it's written from outer space. Fans of the Rocky Horror Picture Show, however, will no doubt, would think differently.

Faithful to the film, CRD's original effort allows you to play either hero Brad or heroine Janet in their encounter with Frank N. Furter, Riff Raff and the other denizens from the Transylvanian

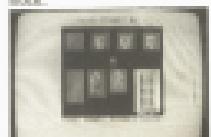
galaxy. In your journey around the gaudy mansion, you will hear your shadows, be fascinated by anti-matter lasers and subjects in all sorts of indignities. What you're trying to achieve is left ludicrously vague; somewhere in the house are the dismantled parts of the Bradica machine which you need to combine your bated, but it's left to you to work out what characters are hostile, how to assemble the bits, and so on.

The graphics are fine, though the sprites aren't that detailed — perhaps a good point in view of the fact that you spend most of

your time naked. The music is excellent, and the characters come out with the odd snort of song lyric in speech bubbles.

Whether "Let's do the Time-Warp again" adds anything to the running of the game remains to be seen.

Overall, an interesting effort, although, while there you can also gamble and auction your stock.



The graphics on each screen are unspectacular, and the action can be rather slow. However, the

fun is odd subject or choice (why the film isn't that popular with younger devotees) and a fairly run-of-the-mill game style in itself, saved only by a camp sense of humour and a few decent graphics. Whether the studio will develop an unlikely franchise in reservation remains to be seen.

Program: Rocky Horror Show, 64

Supplier: CRD

Price: £19.95

Graphics: **4** **5** **6** **7** **8**

Sound: **4** **5** **6** **7** **8**

Gameplay: **4** **5** **6** **7** **8**

game itself can be good fun, probably best played with at least two players. It's in this direction that the subtleties of trading, and the effect of random events such as earthquakes and robotics, become most interesting.

Program: MILLE, 64

Supplier: Ariadna

Price: Tape £19.95, disk £21.95

Graphics: **4** **5** **6** **7** **8**

Sound: **4** **5** **6** **7** **8**

Gameplay: **4** **5** **6** **7** **8**

which isn't very ambitious, though the graphics and special effects are reasonable. Once you've got through a certain number of stages, you can progress into new areas which are unengaged and really mysterious. You'll need a lot of patience to get that far, though. Lands of Illusion is a competent but uninspired program, which follows the same sort of line of reasoning as many others: lots of screens, lots of pseudo-mystical backgrounds, sugar structures and a pretty feel. That isn't to say that the game isn't perfectly plausible — it just doesn't stand out from the crowd.

Program: Lands of Illusion, 64

Supplier: Microdata

Price: £19.95

Graphics: **4** **5** **6** **7** **8**

Sound: **4** **5** **6** **7** **8**

Gameplay: **4** **5** **6** **7** **8**

effects and an excellent intro screen. Excellent fun for holding button inventories, and a recommended purchase for sheer entertainment value.

Program: Taskmaster, Amiga

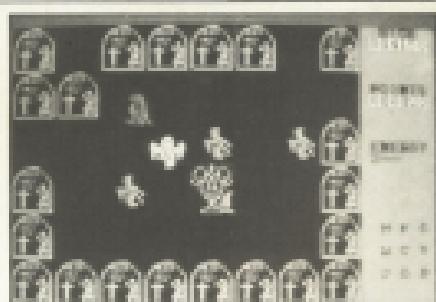
Supplier: Creative Sparks

Price: £22.95

Graphics: **4** **5** **6** **7** **8**

Sound: **4** **5** **6** **7** **8**

Gameplay: **4** **5** **6** **7** **8**



The hero, in the form of a knightly barmirole, scurries around the maze in search of magical objects which will help him to defeat the evil czars who have conquered the land. To gain extra magical power you have to

open a wizard's chest, but to do that you have to find a book of history. This is guarded by all sorts of vampires, zombies, ghouls, wolves, and so on... you get the idea.

The sprites are single colour,

beautiful priests.

The graphics are nicely designed and animated — quite similar to those in International Soccer and the like, except in this case the characters are zombies, batarians, and vampires ... perhaps not that much different.

Certainly the best of the offerings from Creative Sparks' budget Sparklers label, Taskmaster also features nice sound



and complete seven tasks in order to win the hand of a

Planet building

A great concept with a disappointing execution, MILLE, is a planetary development simulation in which up to four players can take part.

The Multiple User Labour Element is a mobile robot

Picture postcards

Carefully designed to look as much as possible like an amateur game, with the same style of packaging and the same sort of instruction sheet, Lands of Illusion also captures some of the playing points of titles such as Star Wars.

There's one question generator which gives it a breath of originality. The package comes with nine postcard-sized maps, and each time you play the program tells you in advance how to lay them out. Since the patterns are generated randomly, this leads to the game being slightly different every time.

Unfortunately, the graphics on the screen aren't as beautifully detailed as those on the cards.

Sparkling epic

A nother cheapie that's never fail to please me (£19.95 US import), Taskmaster is a never-sleeps raver with a touch of magic.

Playing a heroic prince, you

Kerboom!

This is a development of the old sliding block puzzle, in which a series of squares have to be rearranged in a frame to spell out a message or complete a picture. Kerboom's twist is to add an arcade element to the game, so that the patterns you are required to form are constantly changing.

The game is set in a bomb factory, and your job is to get

through all 64 levels destroying all the bombs. Each sliding square is a pellet covered in



poisonous gas, and your aim is to rearrange them so that the spark on the fuselage is able to

reach the bombs on the edge of the screen and detonate them.

The movement of the spark can be speeded up by pressing the space bar or fire button, and as you progress through the levels the layouts become more complicated and the bombs greater in number. There's also a time limit, and penalties for running into dead ends. At later levels you're threatened by water droplets from an extinguisher system which will put out your spark. The completed version of

the game will apparently feature music on the reverse of the tape, though it's unclear whether it's the "Gambit" made famous by David Lee Murphy's *Man Under*.

Cool marks for originality and inventiveness.

Programme: **Collision**, \$4
Supplier: Inventive
Price: \$19.95

Graphics: *********

Sound: *********

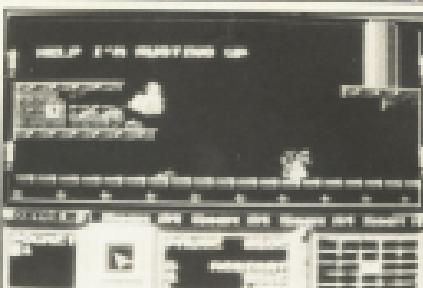
Gameplay: *********

Swarf squad

The multi-screen arcade adventure is a format which is beginning to look increasingly tired, especially for those who don't have the patience to spend hours trying repeatedly to find missing objects or get through locked doors.

Stronghold doesn't avoid these drawbacks altogether, but it does have several elements which set it above the rest-of-the-mail.

There are around 250 chambers, representing a robot factory which has gone out of control. Your little space-suited man flies around, using travel



rates and airlocks to get from one chamber to another. A 3-D map gives your current position, and a compass shows the way to the central control rooms.

Hazards include flying weird and bony robots. Patches from your supplies can repair tanks in your suit, but break these and your oxygen tanks will have to be

Batty biker

How do they do it, exactly? Maxis' latest effort is not only magnificently \$39.95, it wouldn't be beat at \$19.95. Based on the KP Shape cartoon character Chucky Chops, Action Bikes is an absolute gem.

Maxis and KP have put a lot of effort into presenting this game, and it reflects very well on both companies. Chucky Chops is a motocyclist who must

complete a series of tasks at the highest speed possible. The detailed 3-D scrolling landscape is seen through a window, and the panel at the bottom of the screen gives your speed and gear setting.

You're not told what tasks you have to accomplish, though scattered around the screen are ramps, overhead cranes, obstacles, power stations, and so on. The aim seems to be to get around all these in the shortest possible time, by building up a good speed and mastering such tricks as turn. Hidden objects can

help you to overcome the problems posed by the lake, foreground and building site. Somewhere there's also a motorcycle



which will allow you to speed up your ride.

The whole feel of the game is excellent, and it's as well

designed that it gives a feeling of speed and detail without necessarily being very complex or difficult to start playing. Not much too.

Excellent — and, oddly enough, never afraid of the Spectrum version, which seems to be a different game altogether and much inferior.

Programme: Action Bikes, \$6

Supplier: Maxisoft

Price: \$39.95

Graphics: *********

Sound: *********

Gameplay: *********

Tut, tut

Another Maxismonic effort, this time for the Vic 20. This, considering the limitations of the unexpanded machine, has some nice touches. Your task is to guide Archie, an intrepid explorer, through the corridors of an Egyptian tomb in search of the sacred golden death mask. The mummy is briefly protected with palaeontic snakes, scorpions, and the fast-moving

slithering Guardians.

You have a lamp, but it has a limited life, and once it goes out so does you. It's great fun trying to navigate around the maze with only a few squares around you visible, but inevitably you'll be squashed by a Guardian sooner or later. If you can find the mask and take it to the exit you'll be able to escape. Missing you down will be the temptation to amass extra points by stepping on the way to collect gold.

However, one fall along the way and you'll never leave the tomb.



It's interesting to compare this with something like *Deserted* on the 64, which has a similar plot though it's an infinitely

more sophisticated program. King Tut is fast and colourful, and makes the most of the Vic's abilities, and is another argument against those who claim that budget software must inevitably be poor quality.

Programme: King Tut, Vic 20

Supplier: Maxisonic

Price: \$19.95

Graphics: *********

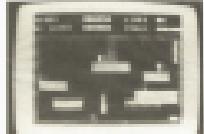
Sound: *********

Gameplay: *********

Scramble, egg

This is a 2D-action arcade title which is probably the best thing of its kind seen so far on the C64. This, of course, isn't saying a great deal, since there's not a great deal of competition. Still, it's all perfectly good fun, so you, playing the unarmoured Prince Harry, attempt to get through the Dark Tower. Things

aren't made easier by the fact that you have been turned into



a boiled-egg-shaped mutant by the evil guardian of the tower.

So your little egg has to

collect all the magic jewels hidden around the tower, in order to regain his original form. It's all pretty routine stuff, with ladders to climb, platforms to leap onto, and various goopiles to avoid. The animation is very smooth but the screen design is a little unusual.

At the end of each game, you have the option of continuing completely, or starting from the last room of the previous game (though you will eat one of your jewels).

The game becomes progressively more difficult as you get further into it, so it should bring some satisfaction into the lives of C64 owners in search of a challenge. Hardly the most exciting game on the market, however.

Program: Dark Tower, C64
Supplier: Melangeur House
Price: Tape £16.95

Graphics: **A** **A** **B** **C**

Sound: **A** **A** **B** **C**

Gameplay: **A** **A** **B** **C**

A good, fast action-fun, worthy of inclusion in any C64 owner's software library. Untouch's first offering, a 14-game Thing on A Spring should also be worth looking out for, if it maintains this high quality.

Plantlife

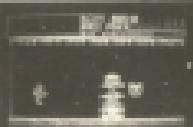
Plants of Doom is one of the simplest games yet for the C64, a combination of Defender and Gardeners' Question Time.

There isn't much logic to the game, but who cares. You are a spaceman, armed with the obligatory joystick and laser gun, trapped in a series of underground caverns. Each cavern is bounded by a force field, and

your only hope of escape is to help the alien plants reach their full growth, at which time the Colossal Colleagues (don't ask me why). Of course, there are all sorts of fast-moving bubbles out to stamp on the flowers and bright yellow chances of escape.

The graphics are excellent, bearing in mind the limits of the C64, and the sound effects good too. Both joystick and keyboard control are fast and positive. You'll lose a life if you run out of

power bars and jetpack, or repeated collision with alien, deplete your power supply, the



sums of which is given by a bar graph.

Program: Plants of Doom, C64
Supplier: Creative Graphics
Price: £7.95

Graphics: **A** **A** **B** **C**

Sound: **A** **A** **B** **C**

Gameplay: **A** **A** **B** **C**

your power bars in them. The great thing about *Plantlife*, though, is that it's not just a shoot-em-up, and a such should have a great deal more appeal than many of the American imports which are fast and colourful, but don't have any real depth.

The manual contains plenty of historical details and strategic advice which adds to the atmosphere of the game, and there are several options related to difficulty levels and so on.

Distributors should sell very well, and deservedly so.

Program: Database, 64

Supplier: US Gold

Price: £9.95

Graphics: **A** **A** **B** **C**

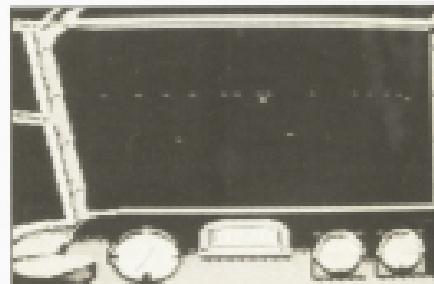
Sound: **A** **A** **B** **C**

Gameplay: **A** **A** **B** **C**

Bouncing bombs

This may well be US Gold's biggest game yet. They certainly seem to think so themselves, since the amount of publicity put into this title by far outstrips any other game.

Based on the James Bond, Beatles mission, US Gold's title is a combined arcade game, strategy and simulation. You have to play many roles as you piece your Lancaster Bomber towards its destination, navigating, responsible for deciphering the map screen and plotting a course which will beat avoid enemy fortifications, fire and anti-aircraft, wasting off attacks



from enemy fighters and brawling barrage balloons; explosives, supervising the bomb mechanisms and plane systems; bomb aimer, pilot and so on,

The enemy fighters and barrage balloons are not particularly detailed, though they do disappear in a satisfying explosion when you've brought

Checkmate

Badly named, since its title suggests it to be a straightforward chess simulation rather than a very original arcade game, *The Chess Game* is the first independent effort from Micro Classics, and deserves to do well.

The brilliantly designed opening screen shows you innocently asleep, surrounded by armaments and with your chess board by your side. Press the fire button, though, and you're

buried into a nightmare, where you have become a pawn on a gigantic chessboard, and you are surrounded by hostile horrors



both on and off the board.

The perspective animation and the sprite designs are excellent, though I would have appreciated

more detailed instructions. Your little man, complete with nightcap, has to make his way across the chessboard to score points, knock chess pieces, and missiles thrown from the audience, for the win.

You can freeze the action if you get into trouble, though this will cost you a point penalty. You'll get a bonus if you can finish the entire board without losing a life.

It's a pity that such a great-looking game comes without more explicit instructions. Some players may have the patience to

work out the significance of the differently-coloured board squares, the buttons for "queening" and so on, but it's not something which is immediately obvious. This is a pity, because together with the title of the game it could put many people off what is a very clever and original program.

Program: The Chess Game, 64

Supplier: Micro Classics

Price: £7.95

Graphics: **A** **A** **B** **C**

Sound: **A** **A** **B** **C**

Gameplay: **A** **A** **B** **C**

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AS SOMEONE who's always been more interested in pork chops than karate chops, I eyed this new Melbourne House title warily, but as a determined player I didn't take too long to come to the conclusion that *The Way of the Exploding Fist* is right up there among my Top Five Commodore games. The graphics can truly claim to be cartoon-like — though maybe even that is a little unfair and we should be almost calling them lifelike.

Because the graphics are so good it means you can enjoy playing the game straight away without too much about the controls — just sit back and watch yourself keep hitting the deck with great regularity and in almost painful rhythms. If you're anything like me you probably will want to play immediately when faced with the lengthy instructions, though you'll have to go back to them eventually or you'll just continue in catatonia until that eventual death.

There are one- and two-player modes, with keyboard and joystick options, though if playing on keyboard only you will have to be pretty nimble with the digits. I'd like to have seen an option to choose your own keys, but it is quite possible to play well on the keyboard

and most people will be able to go for the joystick option anyway.

For this you need a good eight-directional joystick, with each of those eight directions covering 16 possible movements according to whether the fire-button is pressed at the time or not. For example, if you press the joystick up then you leap in the air, but if you have the fire-button pressed then you execute instead a flying kick to your opponent's head — provided it's still there by the time you arrive, although all the movements are carried out very quickly, so you'll discover often playing against the computer.

One difficult-to-define feature that a game like this must have is practisability, the feeling that you're going to grips with it and making progress, even if only slowly. That does apply to *The Way of the Exploding Fist*, as you begin your first encounter on novice level and hope to progress upwards through the various class. You have thirty seconds in each bout, and instead of two falls, two submissions or a knockout, the winner is the first to reach one full point, which are indicated by glowing symbols at the top of the screen. Obviously you have to bring your opponent



THE WAY OF THE EXPLODIN'

In search of universal harmony and one-ness with the cosmic all, Mike Gerard sets out to learn the secrets of karate from Melbourne House. What is the sound of one hand clapping, anyway?



■ In short periods, our hero takes this pose



■ A quick kick to the side — low, medium, or a little more

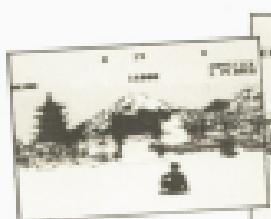
on the ground, but whether you gain a full point or half-point for this depends on the move and how well it is executed.

The movements available range from low kicks and punches to flying kicks and high punches, and it's also possible to block, do backward sweeps, back kicks, and a roundhouse (bunbo-fudo) manoeuvre, though this is tricky to master and inevitably left me facing the wrong way, vulnerable to a kick in the rear from my unscrupulous opponent.

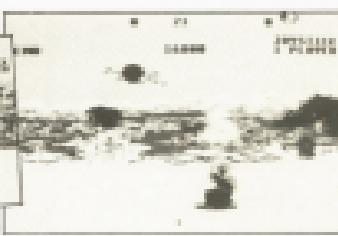
Perhaps the most spectacular movements are the backwards and forwards somersaults, very useful for getting out of tight corners. Also unusual to get used to is the fact that if

you do an about-face and are then looking left instead of right, all your joystick movements do an about-face too. This is confusing, though not half as confusing as I imagined it would be if they didn't change round.

Playing against the machine is reasonably straightforward, as he only tends to execute one move at a time, rather than quick combinations that come up later. I found the easiest way to floor him was to move right in and give a short fall kick to the middle, sending him stumbling backwards. Either that or a kick to the midriff, neither of these being very elegant, and both only worth a half-point, but effective nevertheless.



■ The joystick ... your guide for precision moves here



■ The keypad ... a shifty nemesis will get you out of trouble



BURNING FIST

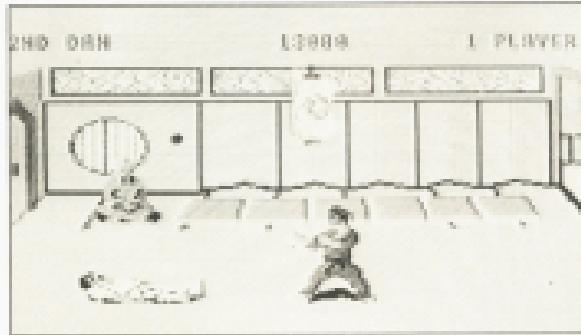
(G FIST

In Daan opponents move more quickly, and come in with successive and continual counter-moves, but after a cautious start I found that a very quick kick to the chest was the way to get up to 2nd Dan level. At 4th Dan level a rampaging bull charges the screen — thought I wasn't going away the score behind surviving its charge!

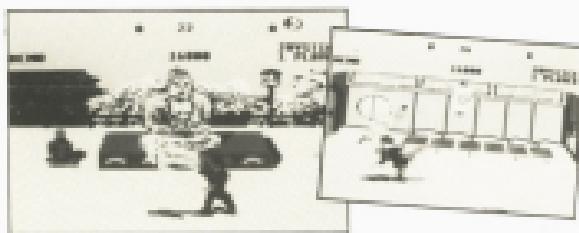
Each level's encounter takes place against a different background, and every elegant they look in mainly pastel colours. The 200-plus sprites are brilliantly designed and animated, and there's a perfectly convincing 3-D look about the screen as the men stand in front of and behind each other, with punches and kicks connecting very believably. The sound and brilliant music adds to the realism in most cases, with pre-punch grunts and thuds as you hit the ground, although some of the effects lose all the attraction of sandpaper scraping down a blackboard. I tended to play the game with them off rather than on.

But play the game I did, again and again, and I'll be carrying on until I come face to face with that bull. I might not be able to make pack chops of him, but he'll be mine... by the time I've finished! ■

MICRO: CBM 64
PRICE: £9.95
SUPPLIER:
Melbourne House



■ The price of impatience — a player has charged



■ The simple — how you will move the rampaging bull



OUCH

■ Make a mistake and you'll injure the rampaging

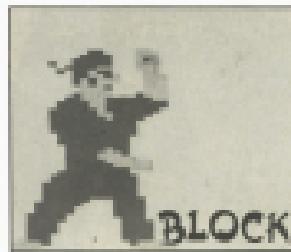


THRUST

■ The low punch can be a powerful weapon here



■ A low sweep allows you to sweep an unprepared adversary



BLOCK

■ Ward off your opponent's punches if you're fast enough



Nick's exploring Virgin territory

It's one of the brightest and most imaginative software houses around, and Mick Alexander has big plans for its future. Chris Jenkins talks to Virgin Software's MD

NICK ALEXANDER would be the first to agree that Virgin Software entered the market with some dodgy products, and took some time to mature into the quality software house it has become today.

"People have now stopped buying products that isn't any good — part of the benefit of the industry becoming more professional is that the sharks who needed little in just to make a quick profit haven't survived."

Virgin Software is part of Richard Branson's much-hailed empire, and like the other wings of the company has suffered its up and downs. Nick Alexander, though, feels that like the famous transatlantic airline project, which is one the verge of flying in second January but after an uncertain start, Virgin Software can see the light at the end of the tunnel.

Part of the problem has been communicating with a market where the phrase seems to be "cannibalism".

"The situation now is that we don't go to many computer shows, because the software market is no longer composed solely of exhibitors who are willing to travel to bar-

their software. We found at one show last year that we did more business by not going, because we were on hand to do business with distributors while our competitors were tied up at the show. Also, with less money about for advertising, and a decline in the specialist computer press, we're having to look at mass-market media for publicity. This is of course expensive, and I think the software industry is about eighteen months away from being able to afford it properly."

GOSH!

So with a contracting market and less revenue from our power houses like Virgin Games? "The situation is still going good, with around 150 companies operating, but I expect only around 100 will survive. Those that do remain will be stronger. There's a sort of parallel with the record industry; they didn't necessarily make much money, and most ended up closing or selling out to bigger companies. You can't ride the parallel too far, however, with games software if you need a company and some programming staff, not thousands of pounds worth of recording equipment. Our in-house team uses BBC machines and disk drives for development work, then transports the code to the different machines. So the kinds of costs you're looking at don't compare with the music business. talented programmers can get by without enormous computers behind them."

"The companies that will survive are those who maintain a high level of creativity. *Fallen Patriot*, written by Steven Lee, was our first major success, and saw us through a fairly lean period afterwards. We're also doing well with *Bomber*, because the CD version has been boosted by the success of the Amiga conversion. *Stranglehold* and *Ghetto Blaster* are the latest products I like *Stranglehold*, though it's a little transversible since it takes so long to get into. *Ghetto Blaster*, by Tom Gibson (ex-Turkey) has also been well received".

Nick's work with the Guild of Software Houses (GOSH) helped to ease the transition



of the software market from cottage industry to big business.

"GOSH was one of the eight founders of GOSHI, which was a spin-off of the Computer Trade Association. It was very valuable in bringing software houses together, raising awareness of the problems of piracy through the Federation Against Software Theft, and dealing with licensing problems like standards for box coding and co-extending release dates. We've almost got a bill through parliament setting sensible penalties for commercial piracy, and GOSH is also going to look at things like establishing overseas markets. I'm not happy on the executive, but I do attend the meetings — GOSH is a very useful channel of communications."

Like many software houses, Virgin seems to have had its fair share of problems with distributors. "Distributors don't want to have to deal directly with software companies — they want to be able to buy everything from one source. That's where the distribution comes in. Unfortunately, because they want their percentage of the profit, it cuts our margins and forces up software prices. It's just an unfortunate function of the marketplace. Distributors also make it difficult to market



much educational software, because they're reluctant to take it in quantity. That's why when we developed an in-house graphics utility, we sold it through a magazine at \$9.95 rather than trying to get it into the shops. We've looked at things like music software, but our market research led us to the conclusion that we just couldn't make money on it. So we're really only interested in entertainment programs.

"If distributors continue to demand bigger profits, many software houses will go out of business. When that happens, though, the software houses remaining will have the upper hand, because they'll be able to dictate terms to the distributors rather than the other way around."

Teamwork

This may sound a pessimistic view of the future, but Nick thinks the overall prospects are bright. "Changes in hardware technology will accelerate the development of software. In the next five or ten years we'll see computers and programs that can be interfaced with compact disk players, laser disks and other devices, such that creative people in other fields will be able to do something worth looking at. At the moment, with the limited memory of the machines available you have to be both a good programmer and a technician with memory to get good results."

Virgin's in-house development team, along with outside programmers, like Steven Lee and Tony Gilman, will presumably be the first to take advantage of such developments. "The in-house teams are fantastically dedicated — they're the first in the mornings, and the last to leave at night. It's not just that they know that the fortunes of Virgin Software are directly dependent on their work — they're also game that, who puts everything in the Top Ten. In fact, when it comes to the man-hunting aspect of the job, they're often able to attract men, like me, like Thorn-Ebel, where I was told before I joined Virgin — there, the programmers were very much shut off from the rest of the world, and as a result their productivity went down and down. Now there just isn't as publishers for bought-in software!"

The team aspect of Virgin Software is an approach Nick is keen to stress. "Initially, the team idea was against my philosophy, but in this small operation it works well. I can talk to the programmers, since I did a little programming on mainframes, though you won't be seeing Nick Alexander's first game on the shelves. I tend to like things like *Psychiatrist*, *Aladdin* and *Concerts of Blues* — mostly non-violent. We have meetings every fortnight to kick ideas around, and they're good opportunities to exchange thoughts."

Future ventures from Virgin include the setting up of a budget software label using the Rabbit name. "Rabbit were one of the first companies to do home computer software, and despite their claimed the name still carries some reputation. We bought the name for a fairly small amount — maybe just, say, what AMP paid for QuickSilver — and will be putting out budget software from September. Most of the games will be new, although some will be back-to-back products which we feel didn't get a fair deal first time around. Budget software is of surprisingly good quality,



though you have to shift chunky numbers to make a profit on it."

Other plans include tie-ups with well-known books and comic characters, though Nick isn't too hopeful about using Virgin's own personnel. "I'd be very interested to see how Ocean's *Pinkie Goes To Hollywood* game turns out. They're certainly too good to bring out as poor games, although in the past the need for licensing deals has led to some pretty bad software. People signed up files and TV tales without really thinking of whether there was a good potential for a game."

"One Spectrum game that fits is now doing quite well, after a quiet start. That's by Chris Kneary, who is more of a musician than a game designer. We also did the board game *Wipe*, which was a nightmare because, having no experience of that sort of thing, we got the counting wrong, and had to sell it at £17.99 to make money. As a result sales weren't too good, although, with overseas versions, it should pay for itself. It wouldn't have been

suitable to make a computer game, though. "With Virgin's *Files of 1984*, there was potential for a game, but the Eric Blair estate was very reluctant to agree to any licensing deals. All they would authorise was a text-based adventure which would have been very faithful to the book, but which would require two-discs to operate. We couldn't see any real market for that. Virgin's pop artists such as Stephen Duffy, China Crisis and so on are doing well, but don't suggest much potential for games spin-offs."

Polarisation

"At the moment we're still working on two projects, which have taken a year so far. I'm hoping they'll be in the shops for Christmas. One is based on a well-known comic hero, the other on an impressively best-selling book. Both will be interactive graphic adventures, using the same sort of artificial intelligence techniques which Imagine talked about in their *Blastronauts* game."

"I think we're going to see a polarisation in the games software industry. Things move so fast that if you make a mistake you can't go back and repackage a product, or add another go at marketing it. The top twenty games now have a poor shelf-life because the pressure of new releases is perhaps less, and the quality of the software is good. At the other end of the market, there's that budget stuff which will sell in large quantities because it's cheap. But we're in a strange period that isn't typical of anything at all — the only sensible policy for survival is to not to try to stay flexible. If you try to second guess the future, nine times out of ten you'll be wrong."

"I believe that the industry does have a future, but I believe it rather than know it. Virgin Software has come close to being closed, but with the full bucking of the rest of the company we can see the light at the end of the tunnel."

With a dedicated team of programmers, a flexible approach to the market and a range of products covering budget lines, high-quality adventure and big-money licensing deals, Nick Alexander's baby in Virgin seems to be fully justified. ■



Don't Buy another tape or disk....

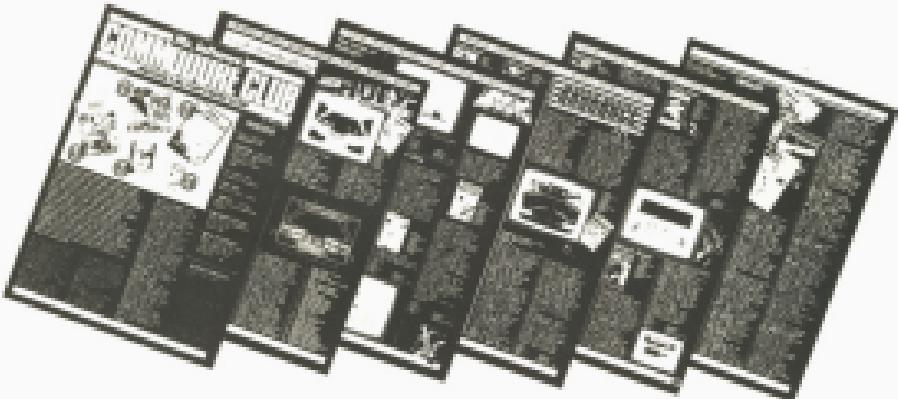
... Until you've seen the low, low prices in our Price List. How does Spy Hunter look at \$8.48, or Lords of Midnight at \$9.95? Mine the cheapest for Megahits at £7.95 while Blagger goes to Hollywood is a mere £5.95. Need we go on? There are another 200 products we could tell you about!

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just the 1's you'll see on software. As a member you'll receive a bi-monthly (for the benefit of ignorant non-Commodore owners) that means every two months magazine, packed with in-depth reviews (including lots of screen photos), competitions to enter, game-playing tips and lots, lots more.

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Executive toys

Tony Mills looks two pieces of hardware with style as well as ability — C. Itoh's CBM-compatible C+ printer and Seiko's amazing terminal watch

AS THE market for utility software such as microprocessors, spreadsheets and databases becomes wider, so Commodore users demand more and more from their systems. One of the most important elements of the home system is the printer, and increasing numbers of manufacturers are catering specifically for the Commodore user.

The C. Itoh Ritterman C+ is the latest entry to the market, and an easy, efficiency and simplicity to prove a strong competitor.

Since the C+ is directly compatible with the Commodore serial port, you can use it with your Vic 20, 64, C16, Plus4 or 128 with no interfacing problems at all. In this sense, the C+ is best compared to Commodore's own MPS-800, for which it is clearly meant to be a rival.

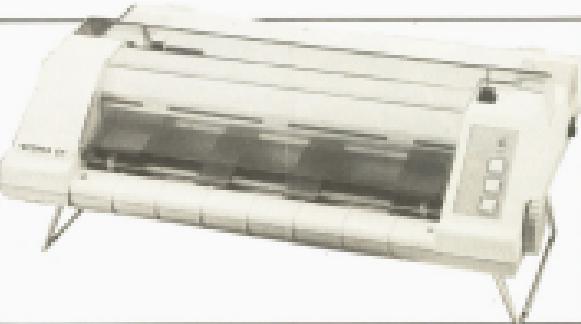
The C+ in fact scores over the MPS on many points. Although it is a dot matrix device, able to reproduce the entire Commodore alphanumeric and graphic set, the design of the hardware itself is much superior to that of the standard CBM printers.

The C+ can take perforated, sheet or roll paper, since it has both tractor and Phoenix feed. Much can be done in the tractor feed pages, 4x20 characters. One unique feature of the machine is that the paper is fed in from the front, and you'll see from the photo, making it much easier to handle. The C+ also has holding legs which allow it to sit on top of paper supply — a space-saver which every home user will appreciate. This method also allows you to use paper of a wide range of thicknesses — even card.

Print speed is also impressive, at 105 cps, uni or bidirectional. Also available, and fully explained in the comprehensive manual, are a number of special print styles such as double underlining, non-linear quality, expanded or compressed, italic, superscript, sub-script and reversed. The ink ribbon is fairly easy to fit, although not as easy as the MPS cartridge. It's also a non-standard shape, so buyers would have to ensure local dealers carried the correct type.

Paper feed is kept fairly low by the paper cover. The controls are simple: line feed, form feed, carriage/return feed select, and on/off/roll/line selectors, together with LED status indicators. Switching on whilst holding down the LF key puts the C+ into self-test mode, where it runs through the complete character set.

Another feature of the C+ is the ability to print hexadecimal equivalents of the data transmitted to it, by switching on while depressing the LF and FF keys. There's also a small print buffer, the size depending on the



character size and column setting.

The manual is well laid out and illustrated, though it suffers from the odd translation

such as "Check the ribbon to be translated easily by one direction? Help?"

Continued over

Time on your hands

Seiko's RC-1000 connects to the VIC 20 to give you 24 of these storage

ISO YOU FINALLY having a computer terminal small enough to attach to your wrist, which will keep in mind your appointments, store useful facts, tell you the time all around the world and wake you up in the morning? Well, it's here — Seiko's RC-1000 Wrist Terminal is either the best example of useful electronic miniaturisation, or an expensive executive toy, depending on your outlook.

The RC-1000 looks like a conventional digital watch, but does a whole lot more. For a start, it has a 26 memory, which enables it to store 69 displays of characters on its liquid crystal display. More importantly, it can be interfaced to a wide range of home computers, including the C16/64, using an RS-232 cable supplied with the terminal, and a suitable interface.

Normally, the RC-1000 displays the date, day, AM/PM and alarm on/off. Clipping on the interface lead and pressing the TERMINAL button changes it into much more than a watch — it can now receive information from your VIC, loading times being typically 13 to 20 seconds.

The interface, supplied either on tape or disk, is in a kind of menu driven "switchbox" program allowing you to enter data using the VIC's keyboard, then download it into the watch's memory. The "sections" and "pages" of information are then accessed by

pressing the watch's TERMINAL button, and the SET or SELECT button to page backwards or forwards.

The review model came with lots of useful information already loaded under several headings: under WORLD TIME there was a list of names of "Centres" with phone numbers; under SCHEDULE ALARM, a selection of meetings, birthdays, appointments and so on, each with a 16-character message and a month, day, hour and minute for the alarm to sound; under WEEKLY ALARM, more of the same, but on a weekly repeating basis; under WORLD TIME a list of overseas capitals with their respective times; and under the basic function WATCH, the daily alarm, calendar paper is 2020, and hourly time signal.

The buttons on the RC-1000 are small, though fairly easy to use unless you have



Continued over

Continued

depends the size of park meadows. The unit itself is very smart, in brushed black or grey finish.

The Solco computer switch series includes units such as the UC-1000 and UC-5000 which can be attached to miniature alpha numeric keyboards, transforming them into complete mini-computers programmable in BASIC (some of which even have a built-in printer and cartridge port).

Certainly one for the "whatever will they think of next?" department, the UC-1000 is I think more than an expensive toy. Unless you're so much of a joker that you can't spare the time in the morning to plug in the



thing and program it, the unit could be useful to all sorts of people whose memories are so overburdened that a little technological assistance can be invaluable.

Product: UC-1000 Terminal Units
Supplier: Hayes/Solco, Berkeley Square, House, Berkeley Square, London W1X 9JL, 01-491 0291.
Price: £199.95, £219.95.



Continued

Fully explained in the manual are the commands OPEN, CLOSE, PRINT #, CMD, and so-on, as well as methods of setting spacing between lines, using alternative character sets, tab setting the print head, perforation skip, paper feed, back space and so on. For most users this sort of information will be of peripheral interest (pun) — if using the machine with commercial software, all they'll care about is its speed and efficiency, which seems to be impressive. This review was originally printed out on the machine, and it compared well with both the Epson RX-80 and MPS-80 I normally use.

Commodore users looking for the perfect

companion to their mice might well consider the C11, despite Commodore's forthcoming "mouse killer" on their own equipment. The C11 certainly wins out on features and speed, and as for style, it's in a class of its own — so sleek in appearance that it's better suited to the C64 than to any of the current Commodore mice. ■

Hardware: C. 10k Electronics Co. dot-matrix printer
Supplier: C. 10k Electronics Co., Beaconsfield, House, 26-30 Maple Road, Wimbledon, London SW19 8TE, 01-948 4900.
Price: £349 + VAT.

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Price: £5.99



Available in most bookshops or direct from Virgin Books,
200 Kensington High Street, London W10. Published: June 27th



MATCH OF THE DAY



BRAT LEAGUE BASEBALL

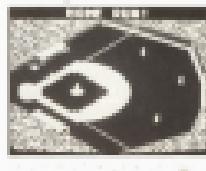
Activision

Brian: "You, well, it's a grid program. You Activision ladies surely know their bytes, though I'm dangled if I know what you

instructions are about, an' — ma hand's we ball' of course.

What's an "instruction", or your "grid", or the "ball"?

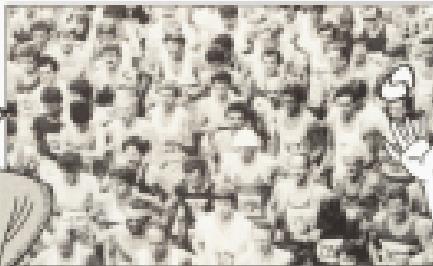
Greet graphics are sound, but you manual needs translate' these English."



SUPERSTAR CHALLENGE

Midway

John: "C'mon, I never expected so much from this game. It ain't just a Daley Thompson rip-off — there's arm dips, rapid bursts, cycling, football, running, shooting, and more. It's all controlled by the joystick, an' ya



AS THE SUMMER heats up, the software houses try to lure you away from healthy outdoor activities with more and more programs based on sports. But are they as good as the real thing? Sporting superstars Brian O'Parett and John McEnroe study the field . . .

getta learn Fancier rather than just chipping away right on left



and hoping for the best. That's why I like it — it's got style, like me!"



INTERNATIONAL TENNIS

Commodore

Brian: "No, don't get me wrong; just because you tennis is played by girls, I wouldn't say it's a cutesy game. This ain't for



real learned men — y'allona last the poor long if y'all're a come boy. It's good an' easy to play, with one or two player options, an' joystick control. You can't view from the side, an' the skills in positioning yourself properly, then controlling the direction an' force of hit in pressing the fire button an' moving ya joystick the way you was. Mind ya, the way that crowd



cheers y'all think it was John McEnroe on your court, not a collection of pixels!"



WORLD CUP FOOTBALL

Atari

John: "Well, maybe your English doesn't fit for girls either, but it sure can't be as exhilarating as a set with Wilt Chamberlain's. This World Cup business lets you pick one of sixteen teams to fight it out for the prize, but I reckon the players all look mighty dinkin'. Maybe it's the programming, or maybe it's the thin atmosphere in Mexico. Olympic International Soccer any time, at least there you can see who you're tackling!"



INTERNATIONAL BASKETBALL

Commodore

Brian: "This it's good, it's good, but tell me ladies, why are there but three players on each side, use the word 'team'?"

"Dame tell me they can eat all upicks! Still, this old international Soccer magic is there, with all the sounds of the crowd an' all the cheering, dribbling an' tackling you want. You score



Continued

scrolls to show the whole pitch, so it's just like watching Match of the Day, except there's no Jimmy Hill, *Jimmy*!"



SLAP SHOT

Atari

"Now this here's a real man's game! It's a two-player ice-hockey simulation with three periods of three minutes in each match. You get fast and slow modes, plenty of joystick control over the power of your shots, good marking, and the graphics are great, just peachy. There's software speech that'll clean out your ears, too, but this is what makes the real deal — it's a great game, but you can't



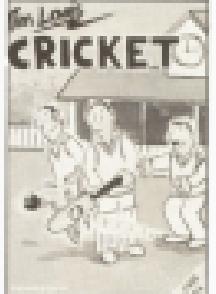
play against the computer! Whoever's responsible for that is the FIFTS of the WORLD!"



THE LOVERS' CRICKET

Parksoft

"Total joystick control. In this case, Jimmy, and that's not just for batsman, bowlers



and fielders are under your control too, so it's the most realistic cricket simulation yet. One or two player options, with your own teams or an England and World show, with skill points shared among the players. On the first screen the batsman faces up, then when

the wicket's been bowled the program switches to a birds-eye view of the field. It's almost as good as a game of tennis!"



CRAZY GOLF

Commodore



Joker: "I don't know about this one, it's for the C64 though, so maybe you gotta make allowances. The way I see it, you get joystick or keyboard control of the direction and strength of your strikes, then it's up to the ball to find its way through the obstacles in the hole. In the States we ain't got invisible obstacles on our courses, though. Greg you know very well to make things difficult for yourselves, don't you? I guess it's okay for weekend sportmen."

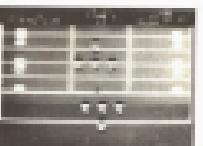


OAKFIELD FOOTBALL

Activision

Bravo: "Och, and it's another one where you cannot understand the instructions! I was saying for the Big Yin only the action key, what's all this blather about?"

"Big Yin?"
"Goals?"
"Goals?"
"Goals?"
Och, it sounds like my old man was in the showers after the match! Once I got into it, though, I could see what you Activision nutcases



were about. The prospective graphics are very realistic, and will improve your performance with practice. But I cannot beat the computer yet, and I don't know if I've the patience with the next thing to get any better!"



ON COURT TENNIS

Activision

John: "This one's gotta be me favo(u)rite. You get a choice of clay, asphalt or turf surfaces, which is more than you get in most! It's a tennis Wimbledo(n), a choice of one or two player options and full racquet control over serves, volleys, drops and ground



strokes. The clever part is that there's no need to move your player around the court; the program positions him for you, so you can just concentrate on hitting your strokes. You can choose to play as any one of four players powered after real tennis champs — and games which are chosen! Just for a change, this one's easy to play, so you can get straight into it. Even Tatami could play it!"



THE RIBBON

Activision

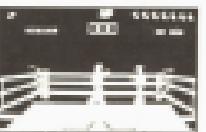
Bravo: "This isn't a bit long in the tooth, but like Malcolm Allison it just won't go away. It's not just an arcade game, mind; it's a realistic simulation, where you get to name your team, make selections, transfers or suspend players, check your leagues table, sign on other clubs, and go through the four divisions, the FA cup, the European Cup and the Cup Women's Cup — and possibly the Cup Women's Cup Women's Cup Model Trophy Cup all! You can save the game at any stage, and the game thing is that because you can keep on playing even when you're up in the top, the game never comes to an end — sounds just like making Whizz second reserves on a New Sunday, Jimmy!"



KNOCKOUT

Activision

John: "This cannot be avoided. This is supposed to be a boxing game, but you compare it to something like Boxing Fit and it's an insult! TASTI! I just never seen such bad options, such stupid programming, what do these guys think they're doing?"



Bravo: "Och, dear! What have I done to the lady, an' when a dumbfounded performance To call this a boxing game, Jimmy — I've seen better fighters in Glasgow Derby an' John Club! Poor design, slow action, bad control — this one's got to be relegated!"



WIN



Graham Gooch's **TEST CRICKET**

DRIAN AND ROBIN'S favorite sports game turned out to be Audiogenics' new release, Graham Gooch's Test Cricket for the Commodore 64. It's a statistics simulation in which you can either just sit back and watch the action taking place on your screen, or take the part of the England or Australia test teams. The batsmen and bowlers are controlled by the joystick, with realistic sound effects and speech.

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Graham Gooch, England's Test opener, was at the Commodore Show in June, and helped us to put together a prize package which should tempt any sports fan. Enter our simple competition and you could win:

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- * One of these autographed copies of the game.
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...written in an apt, original and amusing way in fifteen words or fewer, I want to bat on Audiogenics' team because ...

Send your entry to Audiogenics Contest, Commodore Horizons, 12/13 Little Newport Street, London WC2H 9PR, to arrive by the last working day of August. Winners will be announced in the October issue. Normal competition rules apply.





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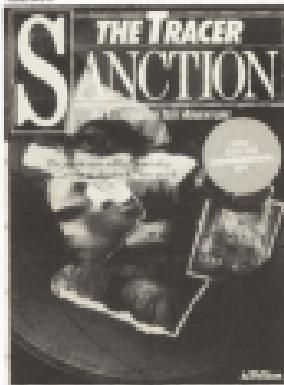
Tel. No. _____

Exploring new worlds on disk

Bold adventurer Ken Matthew looks at two Activision adventures which combine sophisticated interaction with advanced graphics, and promises adventures and competitions yet to come

THE ABILITY of disk drives to hold and access large amounts of information makes them ideal for handling the complex and memory-consuming arrays and strings of adventure games. Our American cousins here long had the advantage of "home" hardware, so it is hardly surprising that almost all of the quality disk-based adventure programs appearing in Britain have US origins.

The ready availability and success of games like the Zork trilogy, at affordable prices, seems to have prompted other American companies to chance their arm in the UK market.



The extra memory available via disk often allows the programmer to add more "atmosphere" to his creation by the addition of voluminous text in Infocom's or some shareware graphics and animation. There are many die-hard purists who still won't touch a graphic game but I believe they will become fewer as "creativity" and "interaction" graphics in programs such as *Satyricon* (1) and the British games get the acclaim they deserve. This month, therefore, I'll be giving you a rundown on two new "Illustrated text adventures" from Infocom.

The first of these, "The Tracer Sanction"

sets you as an Intergalactic Special Agent charged with tracking down a secret do well known as the Pring. You must travel the nine planets of the galaxy and collect the clues to lead you to the final confrontation with the master.

To help you accomplish your task you will need galactic charts and the code to refuel your ship as you move from one planet to another. Each of the planets you visit holds the key to the next part of your mission, and a few red buildings as well. Location descriptions are brief but well compensated for by the lavish graphics which both deserve and require some study, as they sometimes hold an essential clue. Many of the eighty or so screens feature some animation such as a boggle-eyed human and collapsing mine on the planet Jafobis.

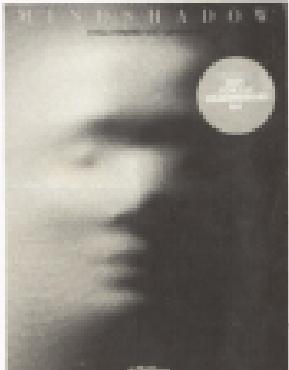
Responses

The game understands full sentences although raw word commands usually suffice. Some of the responses to common commands become a little inconsistent, but the clever use of the function keys to use a lot of letters more than compensated for this minor irritation. Of particular note though is the Quantum facility which uses a current position on the game disk, read in very few seconds, thus saving a lot of time lost skipping disks for each zone.

The second title, "Mandrake", has a more down-to-earth setting, in the Robert Ludlum mould, with the player lost on a desert island suffering from amnesia and at a total loss as to where to go and what to do. Slowly and painfully you will re-examine the globe in search of your identity and the scientist who left you unconscious to die.

Both of these games share the same features, and each has a section explaining the basics of adventuring on the back of the disk. There is also an unusual help feature in each

game which allows you to get three hints each time you play, making the games even more valuable for the novice.



Activision

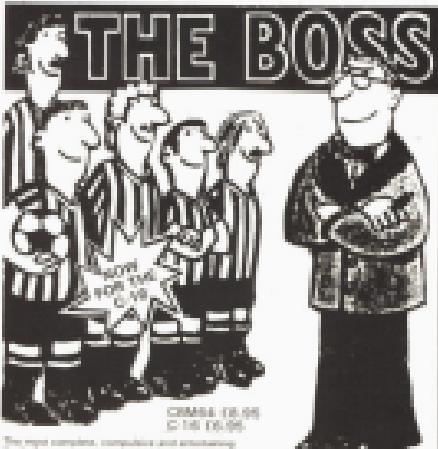
I have thoroughly enjoyed playing both of these games and I would cheerfully recommend them to all but the very experienced adventurer.

Finally, I would again like to ask for your letters and suggestions to help us let the Times much more helpful and warn you to sharpen your wits for next month when I will be announcing details of a new monthly software competition — I promise it will be easier to decipher than Enigma! ■

Coming soon...



We'll be looking at The Fourth Protocol from Activision, based on the Frederick Forsyth novel, and at Typhon's Supergeo adventure Plus, the first in a series of adventure software competitions...



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This book contains complete and interesting information on how to use the Commodore 64 computer. It covers: Basic Programming; Graphics; Games; Advanced Programming; Data Handling; Business Applications; and many more... It also includes a complete listing of software available for the Commodore 64 computer.



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Special effects

As an introduction to this month's feature on CBM 64 graphics, Chris Jenkins talks to the company behind some of the small screen's most spectacular images — Computer FX

THE COMMODORE 64's graphics capabilities may be impressive, but with higher resolution and more storage space computers can create stunning video images which appear almost real.

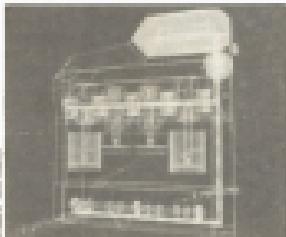
One company at the forefront of computer-generated image technology is London-based Computer FX. The company's computer equipment would make the average graphics



bored — in fact, most of you will have seen Computer FX's lifelike animations on TV in adverts such as those for Pepto, the D&B and Damned, and programmes such as *Max Headroom* and *Laser Tales*.

Computer FX's Ian Chisholm explained how the video images are performed. "The best pictures are created pixel by pixel, but that's such a complex process that it slows down even the biggest machines. So we use a line plotting technique which is faster and gives a very different result."

The equipment is based on a dedicated CAD Computer Aided Design station called the IMI 300. It includes a 300MHz-based Unix operating system, with 256K video memory, 16MB storage, and several graphics-dedicated processors which altogether operate at a speed of 1 billion instructions per second. Software specialist Craig Evans developed routines which allow images stored in the system to be manipulated in space through any form of rotation by use of a simple joystick.



"We can adapt the software to the needs of the client, but usually the software we've developed covers what's needed. For *Zarathos*, I had to write a routine to generate 'cup' and 'thermos' images to depict a computer generated 'fairy-tale'."

The information on which the animation is to be based is entered from a drafting board, using full technical specs for the objects required. Andrew Reynell and Alan Marques then themselves having to digitise objects as diverse as spaceships and giant denizens — all defined in terms of straight lines. "To get it done you have to use the digitising plotter to cover a series of very short lines. In the case of an *Aston car*, there were so many curves to digitise that it took two days to mark up the plots, and another day to enter the information. The software makes it easy to generate simple geometrical shapes though, so some jobs can be done very quickly. We can also do hidden line removal, perspective fading on the 'Z' plane to give an illusion of depth, and things like 'clip planes' which define a cut-off point for the graphics, which are regular geometrical objects, can give you a simple kind of hidden line removal."

The completed digital images are projected, as "frames", on a display screen. The slightly monochromatic colour is added by filtering the images, with a relatively unsophisticated projector. Home cameras, through a series of coloured filters. Each set of images is filtered using the particular filter required, and with the use of various types of diffusers all sorts of flares, glowing effects and halos can be added. The filming is usually done at around one frame per second, which is as fast as the film can cope.

Ian Chisholm explained that Computer FX hoped to add to its implements array of capabilities by developing a pixel plotting system later this year. "We want to be able to do anything you could possibly want using computer graphics. For instance, one client

wants a vector-plotted background with hand-drawn animation over the top. Another might want a single image but drawn in very high resolution. The only major hardware difference with pixel plotting is that you'll use lots of small machines rather than one large one for frame storage, to cut the frame time. You can never get enough speed, even with the biggest computers, but we're working towards



The stage where if it moves, we can see it!

Computer FX's high-tech creators may soon be removed from the world of the Commodore, since user with his graphics software or graphics tablet, but the next generation of home micros may well incorporate much of the video hardware capabilities we've seen here. The forthcoming Amiga machine has dedicated video and interfacing chips, and a huge range of colours and resolutions, which may well allow home users to explore the very frontiers of computer graphics. ■



Craig Evans (left) - Technical

Brian Sykes

64 Graphics

It takes an artist to pass judgement on graphics software —
Stuart Hughes has his say on the latest 64 packages

STUART HUGHES is more familiar than most with the world of computer art — his paintings have appeared on the inserts of dozens of computer games, books and magazines, including some of the earliest issues of *Computer Horizons*. So Stuart is well qualified to comment on the many graphics packages available for the Commodore 64. In a maximum session in Sunshine Towers one afternoon, we looked at eight packages and asked for Stuart's critical comments...

Artstar

Commodore Software, PO Box 100, Manor Park, London E12.

This tape- or disk-based package comes with a 10-page manual, and can be used with a joystick or lightpen. It can be used to define your own multi-colour character sets, or sprites, or as a drawing program.

The command menu has a 16-colour palette, and 24 commands, selected using the F1 key. Commands include circle, fill, cursor speed, move, fly, and grid.

"The grid function is particularly good; it divides the screen into 1000 cells which makes it much easier to draw accurately scaled pictures."

Doodler

Quicksilver, c/o Argus Press Software, 1a Byford,

Disk or tape, joystick or trackball, Doodler is one of the most powerful graphics packages. There are ten function modes selected by the function keys. Commands include ZOOM,

which can enlarge any chosen portion of the drawing, various box and curve options, freehand shape, fill, grid, mirror, negative which reverses all the colours of the drawing, copy, and laser to include text.

Doodler is set up to print out on a C128 printer, though it can be configured for other machines. Saved sketches can be incorporated into your own BASIC programs.

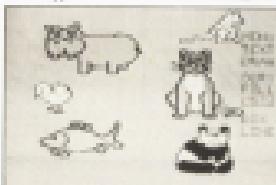
"There's no stopping the laser! The cursor is really fast and smooth, and the circle and ellipse functions are excellent. The fill function is good too. This program is sophisticated, but also easy to use straight away without spending hours on the manual. Great!"

Activity Centre

Argus Press Software, Liberty House, 2 Regent Street, London W1.

This package is a mixed bag, enabling you to draw and animate pictures, generate text, and add music. It's disk based. The drawing

program only lets you use four colours at a time, which are selected from a menu with the joystick then stored in a form of "memory stick". Commands include Circle, Line, Fill, Box and Copy.



"I think I could draw better circles than that though — for some reason they're all squashed. I can't do anything with this area, the cursor moves so slowly that you can't really control it, and if you spend it up it skips pixels rather than just drawing faster."

Tom Hart's Art Master



Commodore 64 below)

The high-resolution companion to the low-res Roff Martin program, Art Master comes on tape or disk, and features a command box on

the drawing screen which gives the cursor control menu. Features include lines, circles, fills, and repeating blocks. You can print out your completed pictures, using a Commodore printer.

"I found this one

very user-unfriendly. I just had to give up on it in the end. The done pictures are impressive but it's very difficult to achieve slightly professional results."

Gaskit

Akling, 19 West Hill, Dartford, Kent, 0322-92126.

Another multiple package, which enables you to draw, animate and compose music. The tape-based program adds 23 commands to

Basic which make it much easier to create your own programs. The graphics routine allows you to use a thin "spend" or thicker "break" which can be controlled by keyboard or joystick. Animation features include circle, line and erasing; you can also define a "sequence" of movements which can be repeated any number of times.

"Very easy to use in drawing mode — smooth cursor movements, though the





controls aren't very obvious and take some getting used to!

Ralf Harris' Picture Builder

Commodore, 1 Winter's Road, Widnes North Industrial Estate, Cheshire, WA1 3RJ, 0156 200013.

This tape-based package is for beginner artists, and uses the standard Commodore graphics set or a specially defined set as "Building Blocks" to construct pictures.

There are sixteen colours and seventeen characters available in each set, and some surprisingly detailed pictures can be constructed bearing in mind the limitations of

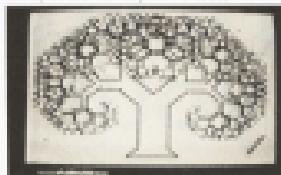


low-resolution.

"This is a good package for kids, but doesn't offer enough to keep more ambitious artists satisfied."

Designer's Pencil

Activision, 1 Harley House, Marylebone Road, London NW1 8AA, 01-580 2288.



The programming screen consists of a pencil window, which contains the user and tool options, an instruction bar, which allows you to set colours and define pencil movement, menu commands which affect the control screen, and a programming area which allows

further control of graphics sequences and musical notation.

The programming language PBASIC is used in conjunction with more conventional graphic techniques and joystick control to produce some of the most complex graphics available on the 64.

"It's not easy to get the best from this program, but once mastered it's very powerful."

SuperSketch Graphics Tablet

Among its boasts,

boasted, in full belief, SuperSketch is an inexpensive graphics pad which comes with powerful and user friendly software, with a full range of commands: colour, fill, line, box, circle, mirror, brush shapes, patterns, etc., and so on. SuperSketch can print out in the MPS-801, and because it operates with a tracing stylus it can have existing artwork laid over it for cropping and adapting. "I liked this very much — it's very easy to use, with clear menus functions, and it's easy to come up with good designs, either realistic ones or abstracts."

Pictures by pixels

BY FAR THE quickest and easiest way to make use of the superior graphics facilities of the 64 is to use a graphics tablet. If you've tried to cope with the complexities of bare programming in BASIC you'll appreciate the simplicity of using such hardware even more.

Most graphics tablets are basically pressure sensitive surfaces which transmit information to the 64's screen via software. SuperSketch from Ansig takes a slightly different approach, which gives equally good results at a lower cost than, say, KoalaPad or Graphit.

The SuperSketch consists of a plastic drawing board and a four-button control panel, connected to a stylus on a moveable arm. The mechanical movements of the arm are transmitted to the 64 in digital form, enabling you to define points on the monitor screen with fair accuracy. The software does the rest.

You can make an easy start with SuperSketch by clipping out of the example drawings supplied on the tablet, loading up the disk or tape software and plugging the pad into the joystick port. On the screen appears a cursor and a menu. The menu directs you merely move the cursor to **SELECT**, press the **SELECT** button on the pad and start moving the stylus around — it will leave a line on the screen wherever it goes. At the bottom of the screen appears a small window showing in close-up the area around the cursor, enabling you to exert fine control over each pixel of your hand's stroke enough.

Pressing a button on the pad makes the **DELETE** return, and you can then opt to reuse unwanted points simply by going over them again with the cursor, fill areas with colour, change colours around, snap from "page one" to "page two" (two different drawings can be held in memory simultaneously), or choose the shape of the "brush" with which you are "painting".

from a range of eight.

It's also possible to paint in "designs", for instance a tiled wall pattern, making it easy to fill large areas quickly.

The "expert" menu, a sub-section of the main menu, contains a range of powerful functions designed to make both abstract and realistic designs easier. Lines, rays, boxes, circles, adding text, and various copy and reflect functions are included.



You can also define a window which will limit the area of operation of these functions.

One of the best functions of SuperSketch is a very easy-to-use printer output routine. It's designed to work with CBM MPS-801 or 802 printers, though Epson using the Centronics interface from Infotek Control Systems will work perfectly. The manual also includes instructions on incorporating graphics, and the print-on ability, in your own programs. ■

Producer: SuperSketch graphics tablet £65.
Supplier: Ansig, Unit 10, Victoria Industrial Park, Victoria Road, Dartford, Kent. Price £49.99.

Adding a little flash to your 64

Adding commands to 64 Basic can be painless even if it involves machine code. John Sykes explains how to create a FLASH routine

MANY POPULAR home micros have a FLASH command built-in, which allows the user to type FLASH, or FLASHHIM, or so on, and specify a line number, and all the text on this line — for just part of it, will be flashed. This sort of thing can be simulated in CBM Basic, of course, using a simple FOR-NEXT loop, printing the line, and then a line of spaces over it alternately. The problem with this method, though, is that it ties up the machine while this flashing is going on, only giving you time to check for an input or keypress before you have to loop back, in order to keep the flashing going at a reasonable speed.

Interruptions

This routine, being written in machine code, does not suffer from this problem — you just set the flashing going, and forget it — it carries on by itself, leaving the program to get on with the important stuff at its own speed (well, very nearly).

In fact this "routine" consists of three separate subroutines. The first enables the IRQ interrupt vector to point to the start of the second routine, which is responsible for the actual "hard work" — i.e. the flashing. The third "routine" simply restores the IRQ interrupt, to turn the flashing off.

Now many novice (and some very experienced) machine code programmers are afraid of these things called "interrupts", usually because they have been told that they interrupt their CPU chip itself. This is, of course, quite true — but what many people fail to realize is that this will not STOP the chip, just divert its attention elsewhere.

What actually happens is that whilst the C64 is operating in no program running, an interrupt occurs every 50th of a second (or thereabouts). At this point the keyboard is scanned, any input is stored in the keyboard buffer, and the machine returns to whatever it was doing before possibly several tasks, such as keeping things displayed on the screen.

What the programmer can do, however, is to force this "interrupt handler" routine to go and perform some task — for instance RELOAD reading the keyboard and so on — 80 times a second. This is what this Flash routine does, in essence.

To actually use the routine, of course, you do not really need to know anything

about machine code, interrupts, assembly language, or any of the other things I've been going on about above. All you really need to know is that the command is in the form:

FLASH(17)(line, column, number, colour), colour.

This looks a bit daunting at first, but is not too bad, when you get used to it:

BASIC

Screen row 19-24, where the first text to be flashed is located

COLUMN

Screen column 19-40, of first character to be flashed. Number of characters (1-255) to be flashed gather after the first

COLOUR1

Colour (0-15) that the text will be on cycle 1 line below

COLOUR2

Colour (0-15) that the text will be on cycle 2 line below

DURATION

Number of cycles (50th's of a second) to display each colour.

Now, if the business of COLOUR1 and COLOUR2 has you confused, I will try and explain — although the best way to find out is to try the routine, and keep changing the numbers.

In many FLASH routines built into BASIC objects, the user only specifies one colour, and the text is flashed between this

colour, and that of the background twice over that may be, making the text appear and disappear alternately. This routine will do this if you set colour 2 to the background colour, as set in 16. If it is set to 16, then the background colour may be changed, but the text will still appear and disappear, as before (see the demonstration program — lines 348-350 — for an example of this.)

Duration

That, then, is what you might call a "normal" flash, where text is alternately visible, and invisible. What this routine does in addition to this is allow you to give TWO colours — both different to the background colour, and flash between these two. This can produce some very interesting effects; using 1 for COLOUR1 and 7 for COLOUR2 for instance can give the impression of a line going dark and then bright again — especially on a black background.

Finally, a word on DURATION. What you are actually doing when you give a number for DURATION is specifying how many 50th's of a second you want the text to be each colour (or colour and background). 50 times a reasonable figure for this parameter, but you may prefer some other speed.

All in all then, the easiest way to find out



about the routine is to use it, and I think you will find it a lot simpler to use than I have made out. One word of warning though: giving parameters above the maximum range will result in an **ILLEGAL QUANTITY ERROR**, but

using negative values may crash the machine, so I wouldn't try it — they don't mean anything to the routine, anyway! Also, it is advisable to turn the routine off during DISK or TAPE operations, as these may not work if the routine is operating.

To switch off the routine, use:
515049121 (with NO parameter)

Most of all, experiment — some quite nice effects can be achieved with a bit of judicious fiddling that isn't public — you'll get arrested! ■

FLASH ROUTINE — CBM 64

```
1000 1
1100 REM *****DEMONSTRATION OF FLASH*****
1200 REM ** DEMONSTRATION OF FLASH ** 
1300 REM ** ROUTINE ** 
1400 REM ****DEMONSTRATION OF FLASH*****
1500 1
1600 POKC $0000,0:POKE$0001,1:PRINTCHR$147:CHR$1200
1700 PR INTCHR$147:TINT$1200:PLEASE WAIT":SOUND 1:SUBPRINTCHR$147
1800 FLASH#171:END:FLASH=49022
1900 FORP=1TO5:PRINT"TEST TEST TEST TEST TEST TEST TEST TEST":NEXTP
2000 SYSFLASH=16,96,40,7,1,96
2100 FORP=1TO5:NEXT
2200 SYSFLASH#
2300 PR INTCHR$147:1:FORP=1TO5:PRINT:NEXT:PRINT"FLASHING LINE"
2400 SIT$FLASH$16,96,40,7,1,96,30
2500 FORP=1TO15:POKE$0001,P:FORP=1TO1000:NEXT,P
2600 SYSFLASH$16,96,240,1,96,30
2700 POKC$0001,0:PR INTCHR$147:CHR$1200:TL$1200
18000 1
1810 REM ****DEMONSTRATION OF
1820 REM ** ROUTINE TO LOAD THE DATA **
1830 REM ** INTO RAM ** 
1840 REM ****DEMONSTRATION OF
1850 1
1860 FOR SHTO$15:NEXT:DY
1110 IP DISCHARTHETRETURN
1120 POKC$0000+4,0:HINTH
1130 FLASH=49021
11400 1
11500 REM ****DEMONSTRATION OF
11600 REM ** THIS IS THE DATA FOR THE **
11700 REM ** MACHINE CODE ** 
11800 REM ****DEMONSTRATION OF
11900 DATA1,0,0,7,48,0,16,0,255,0,255,17,16,255,24,48,78,78,178,128,0,14
11910 DATA0,156,32,156,178,32,247,156,156,21,156,0,156,156,24,178,0,156,0,156,0,156
11920 DATA0,156,178,255,156,0,156,255,0,156,248,0,242,255,178,78,24,156,156,156
11930 DATA254,156,156,T8,144,156,3,156,156,141,21,0,0,0,0,156,216,156,256
11940 DATA156,0,156,251,156,178,0,156,255,1,255,156,0,156,156,253,178,0
11950 DATA156,248,16,156,48,24,151,251,156,251,178,0,156,255,244,78,117
11960 DATA156,256,256,256,246,178,5,156,24,151,251,156,251,144,21,256,256
11970 DATA156,257,251,16,256,0,178,255,255,145,251,256,256,4,156,256,256
11980 DATA0,1,156,246,0,78,48,254,178,0,156,252,1,141,0,156,156,254,141
11990 DATA1,156,78,48,254,156,255,48,141,251,1,156,254,141,21,0,0,0,0,255
READY.
```



Remember to save the routine before putting it in any errors in the DATA could cause a crash!

The eternal triangle

Trevor Doherty investigates an age-old story of ambition, high finance and integration in the steamy world of Commodore 64 business software.

IN THE WORLD of business software, there is a move towards integration, particularly the ability to share data between the three essential pieces of software: word-processing, spreadsheet and database.

Triangle gives you all these packages together on one disk, at under £100. The package is under license from the US software house Software Inc., selling in the States under the name Trix.

Loading Triangle from disk, following the well presented 10-page manual, a menu allows you to select any of the three programs: word, calc or file. Once in a program you can load one of the others or exit to BASIC without restarting the computer. Data held must be saved to disk before file change otherwise it will be lost. Each program has Help information called up from the menu, and displayed in a window overlaid on the screen.

The word processor allows a maximum of 800 lines in a single document; a number of documents can be linked "globally" for printing. The text can be split between two working areas, the main area and the "Clipboard" which can be used to store paragraphs, as names and addresses, to be merged with the main document. Triangle Word is a page-formatting word-processor, the printed format is not shown on the screen but controlled by formating commands. On the 40-column 84 disk it is a perfectly acceptable way of working, as the many users of Commodore's Executive will testify. Like Executive, Triangle Word splits words at line ends on the screen, unlike Executive there is no way of previewing the text in printed format, you have to wait until you print it. Triangle Word is one of the easiest to use word-processors I have come across that in itself is a recommendation.

The command structure is considerably easier to remember. Most functions use CTRL plus another key, full use is also made of the function keys and other logical keys such as INS/TAB and HOME. Thus to search for a word or phrase you press CTRL plus S, to print CTRL plus P. You can insert, delete and move or copy blocks of text easily, but when dealing with a section of text you have limited inserting or copying a number of whole lines. You can access the full range of typewriter such as underline, italic etc, but Triangle Word only supports printers on the serial interface. The limitations of Triangle Word are easy to live

with and the compensation it makes worth money to many home or small business users. I liked it.

Unfortunately, everything isn't so top tier. Triangle Calc, which has one major drawback in the way cells are referenced, is a spreadsheet containing numbers and text like rows and columns, allowing calculations to be carried out by referencing the 'cells' containing the numbers. Virtually every other spreadsheet uses a variation on a system like the game 'Battleships' in reference cells: the top-right hand corner is A1, with B1, C1 etc across the page and A1, B1 etc going down. Not so with

the figures in columns across the sheet. Press the 'up-arrow' key and the rows appear to remind you what the rows are until the key is released. A clever and sensible feature for a spreadsheet using a narrow all-column screen. Cells can be edited, column widths individually altered. A full copy function is provided and there is a good range of mathematical functions.

The main functions are accessed in a similar way as in Triangle Word but the way you use the function keys is different: you press CTRL and the user key simultaneously not one after the other — why couldn't it be consistent? A helpful reminder of the functions available is displayed on the screen. If you could ever get used to just one way of addressing the cell referencing, the rest of it is great.

The database (rather a grand name for this 'Variant' filing system) is simple, straightforward and extremely easy to use. Up to 17 fields are allowed per record, with the number of individual records only limited by disk capacity.

Data can be entered, edited and searched for as required. The code red checkmark appears to be an inability to browse through the records without knowing their contents. You could get round that by adding a record number as one of the fields. Triangle File is one of the easiest back filing systems I have seen on the 64.

The integration between these packages is described as 100% on the cover, actually it falls considerably short of that. In practice data can only be easily moved in one direction, from Calc and File into Word. That is exactly what is needed for most

Triangle Calc cells are referenced in row, rather than in row dimension and col1, col2 etc in the cells. To add up two cells you need to type in R1C1 + R2C1 instead of A1 + B1: worse still if you want to copy the calculation to use in another column you need to use a formula system of relative addressing. Thus you would say R1C1 + R1C2... translated this means two cells up in the same row added to one cell up in the same row. It sounds complicated, and it is! Given that A1 + B1 are okay.

It is a shame about the cell addressing because the rest of the spreadsheet is a delight to use and includes one feature which I hasn't seen before. You can use a column as a title and then scroll sideways to look at some of

jobs, so that's fine. Despite my reservations about Triangle Calc, this multiple package offers so much for so little money, there is no comparison. You would need to spend £75 on Pacinelli II to do better. Either as a minor business package, or the single piece of software needed to help you run your business out your home-business, Triangle gets my recommendation. ■

Software: Triangle 64
Supplier: Aquarius Software, Liberty House, 223 Regent Street, London W1,
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gettobedeggs for as long as you can. If you allow them to touch you you'll die, but if you stay out of reach long enough you can save your name on the high-score table. Here's a hint: the zombies will always move straight towards you, so try to make them miss.

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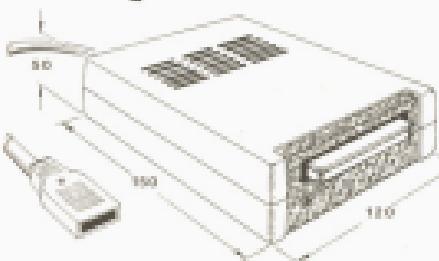
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2013 PRINT#800-->[REDACTED] THE ALIENLEDGERS -->
2014 PRINT#800-->[REDACTED]

2015 PRINT#800-->[REDACTED] FROG'S HOME HAS BEEN INVADED.
2016 PRINT#800-->[REDACTED] HE HAS NO CHANCE OF SURVIVAL BUT HE
2017 PRINT#800-->[REDACTED] FIGHTS BACK AND SCORES A HIT BY FROG
2018 PRINT#800-->[REDACTED] HAM USES A JAVELIN IN FORT 2
2019 PRINT#800-->[REDACTED] PLEASE WIN NOW TO PLAY CONTINUOUSLY
2020 PRINT#800-->[REDACTED], OR RETURN

```

BY K. MOBLEY@EDGECOM
DON'T GIVE UP WITHOUT

Space Grid

THIS PROGRAM for the Commodore 64 uses some basic game of strategy. Also, SPACE GRID is a two player game. One

player starts at the top of the grid. His task is to reach the exit at the bottom. The other player is the Grid Master, and his job is to stop Player One.

The players take it in turns to move by typing in directions, N, E, W, S, NE, SE, SW, NW or Player One is shown as a blue dot, but the

Grid Master is invisible. The grid master wins by placing himself on the spot Player One will always move. If he stops over a spot already occupied by Player One, he loses. Player One's exit point is marked — if he reaches it, he wins.

Instructions are included in the program.

```

10 REM SPACE GRID BY J. STONE ,1980
20 COLOR8,1:COLOR4,1:PI=3072:C1=2048:VX=23:Y=17:V=3:W=21:VOL8
30 REM TITLE PAGE
40 PRINT"*****SPACE GRID*****"
50 PRINT"ANTHE AIR OF THE GAME IS TO CAREFULLY GUIDE"
51 PRINT"YOURSELF FROM THE TOP OF THE GRID TO THE"
52 PRINT"THE EXIT AVOIDING THE GRID MASTER WHO"
53 PRINT"SHIRTS AT THE EXIT AND IS OUT TO TRY TO"
54 PRINT"EVAPORATE YOU ."
55 PRINT"BUT BEWAREFUL. THE MASTER IS INVISIBLE !"
56 PRINT"*****"
57 INPUT"PLEASE ENTER YOUR NAME":NE
58 PRINT"PLEASE ENTER NAME OF THE PERSON WHO WILL"
59 INPUT"PLAY AS GRID MASTER":V/V
60 PRINT"PLAYER IS":V/H
61 PRINT"GRID MASTER IS":V/H
62 PRINT"DO YOU WANT THE INSTRUCTIONS (Y/N)?:"
63 GETKEYH:IFRH=="THEH190"
64 IFRH=="Y":THEH190
65 IFRH=="N":THEH220
66 GOTO190
67 GOSUB1200:GOTO330
68 GOSUB330:POKEP1+VX+40#VY,81:POKEC1+VX+40#VY,81
69 POKEC1+VX+40#VY,14:INPUT"WHAT IS THE GRID MASTER'S MOVE?":RH
70 POKEC1+VX+40#VY,2:G=VX:H=VY:GOSUB690:VX=G:VY=H:GOSUB340
71 IFX=VY#RDY=VY:THEH350
72 POKEP1+VX+40#VY,81:POKEC1+VX+40#VY,2:PRINT"PRESS A KEY"
73 GETKEYR
74 GOSUB440:POKEP1+VX+40#VY,81:POKEC1+VX+40#VY,14:PRINT"BEH,H";
75 INPUT"WHAT'S YOUR MOVE?":RH:POKEC1+VX+40#VY,2:G=VX:H=VY:GOSUB690:X=0:
Y=H:GOSUB91
76 GOSUB340:POKEP1+VX+40#VY,81:POKEC1+VX+40#VY,14:IFX=VY#RDY=VY:THEH420
77 IFY=21:THEH430
78 GOTO230
79 SOUND3,400,10:RETURN
80 GOSUB460:PRINT"OH THAT WAS AN ILLEGAL MOVE.":V/H
81 PRINT"YOU HAVE BEEN DISQUALIFIED !!!"
82 PRINT"*****ANY KEY**"
83 GETRH:IFRH=="THEH390"
84 GOTO430
85 GOSUB330:PRINT"OH, HUH, HAS BEEN EVAPORATED INTO SPACE. X***"
86 PRINTVH:"!! YOU ARE FREE TO LEAVE. "
87 GOTO940

```

continued on page 26

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```

430 SOUND1,S001,10
440 PRINT"SIMILARLY DONE.";INP:PRINT"YOU HAVE DEFENDED THE MASTER."
450 PRINT"YOU ARE FREE TO LEAVE."
460 GOT0470
470 GOT0540
480 SOUND1,S001,20
490 REM JPPM GRID
500 PRINT"-----";FORI=1TO4:PRINTTTRB(17)"/-----"
510 IFI<4THENPRINT"-----":NEXTI
520 PRINT"-----";FORI=1TO1:PRINTTTRB(16)"/ \ / \ / "
530 IFI<3THENPRINT"-----":NEXTI
540 PRINT"-----";FORI=1TO3:PRINTTTRB(15)"/ \ / \ / "
550 IFI<3THENPRINT"-----":NEXTI
560 PRINT"-----";FORI=1TO2:PRINTTTRB(14)"/ \ / \ / "
570 IFI<2THENPRINT"-----":NEXTI
580 PRINT"-----";FORI=1TO2:PRINTTTRB(15)"/ \ / \ / "
590 IFI<2THENPRINT"-----":NEXTI
600 PRINT"-----";FORI=1TO2:PRINTTTRB(16)"/ \ / \ / "
610 IFI<2THENPRINT"-----":NEXTI
620 PRINTTTRB(19)"WALK EXIT"*
630 PRINT"-----SHH HHH HE"
640 PRINT" \ / "
650 PRINT" M E"
660 PRINT" / \ "
670 PRINT" SH SE"
680 REM MOVEMENT OF PLAYERS
690 IFH="E"THENH=0+6
700 IFH="H"THENH=0-6
710 IFH="N"THEHD=0+3 HHH=3
720 IFH="T"THEHD=0-3 HHH=3
730 IFH="S"THEHD=0+3 HHH=3
740 IFH="W"THEHD=0-3 HHH=3
750 IFD14THEHD=14
760 IFD26THEHD=26
770 IFD21THEHD=21
780 IFH<3THEHD=3
790 IFH=3AND0<17THEHD=17
800 IFH=3AND0>26THEHD=23
810 IFH=3AND0<23THEHD=23

640 PRINT"INSTRUCTIONS"
650 PRINT"REF-HLD STARTS AT THE TOP OF THE GRID."
660 PRINT"THE GRID BORDER STARTS AT THE BOTTOM."
670 PRINT"THE PLAYERS MUST GET TO THE EXIT WITHOUT"
680 PRINT"STEPING ON THE GRID BORDER'S POSITION."
690 PRINT"THE GRID BORDER CANNOT STEP ON PLAYERS."
700 PRINT"THE FIRST FORCE THE PLAYER TO STEP ON HIM."
710 PRINT"THE PLAYERS CAN STEP ON THE GRID BORDER."
720 PRINT"BUUT THE BORDER IS THE SAME COLOUR AS THEM."
730 PRINT"SO IF YOU DO THE PLAYERS WILL RUN INTO HIM."
740 PRINT"YOU CAN MOVE USING THE THESE LETTERS."
750 PRINT"ENTER A LETTER TO EXIT."
760 PRINT"ENTER A LETTER TO EXIT."
770 PRINT"ENTER A KEY TO PLAY AGAIN NOW."
    
```



```

1100 GETKEYNP
1110 PRINT"GETKEYNP"
1120 GOT0220
1130 REN TITLE TUNE
1140 SOUND1,S001,25
1150 SOUND1,S001,30
1160 SOUND1,S001,25
1170 SOUND1,S001,35
1180 SOUND1,S001,30
1190 SOUND1,S101,20
1200 RETURN
    
```

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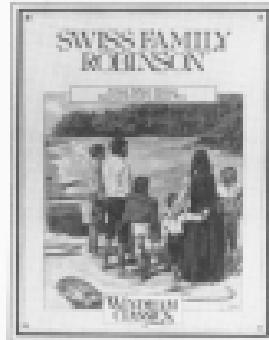
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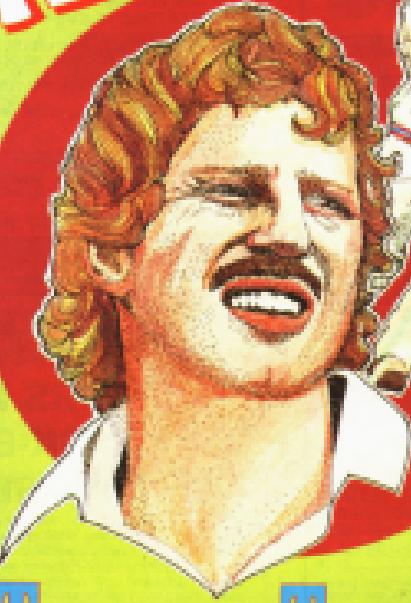
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IAN BOTHAM'S TEST MATCH



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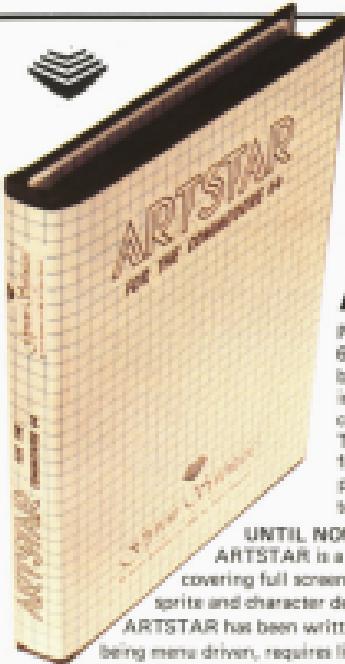
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THE ULTIMATE GRAPHICS PACKAGE FOR THE
COMMODORE 64

ARTSTAR

Producing high quality colour graphics on the Commodore 64 has never been an easy task, yet almost every program benefits from well designed graphics displaying information in a more readable form and an almost essential part of computer games.

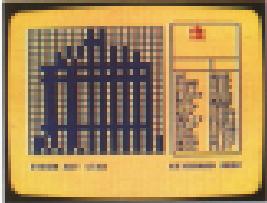
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ARTSTAR is a professionally written and comprehensive graphics package covering full screen multi-colour bit mapping advanced sprite and character design including sprite animation.

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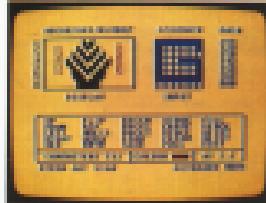
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MULTI COLOUR PAINT BOX
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COMMODORE 64 User wishes to swap software. I have 200+ titles. Take only. Send list to: Alan Stevenson, 121 Middle Road, Broughby Ferry, Cheshire, England CH6 2EU or Tel: (0865) 88644. All others unanswered will be sent.

WANTED: C64 64 User. Swap games etc. From Schneider Germany, Germany Games, Double Dragon, Doctor and others. Would like C64 version. Send list to: C. White, 129 Phoenix Lane, Luton, Bedfordshire, UK.

C64 64 software to swap. More than 100 titles. Includes Altron, Phoenix II, ZZ-Spectrum, Ray vs Ray, Zx, John Inneson Janus, The Big Adventure, etc. Send list to: Paul Williams, 127 Woodstock, Birmingham, B15 4EP, UK.

C64 64 S.O.S. TRAILBLAZER to swap. Many British and American titles. Tel: 0442 728282. Tel for "Janus" between 7.30 and 8pm.

C64 64 S.O.S. TRAILBLAZER to swap. Many British and American titles. Tel: 0442 728282. Tel for "Janus" between 7.30 and 8pm.

C64 64, ANYONE wants the following. Be prepared to offer selling for swap. Old titles with one or more layers or disk and have a large collection. Please Tel: Paul on 01-7438181.

COMMODORE 64 software to swap. G.I. Handbook, War Games, War Games, Navy Hunter, Long Mission, Robin Hood, around 600 titles, or disk or tape. Send your list to: Mr Paul Hayes, Armyman Through, 194 8210 0 Arthur St, Dunelm.

WANTED: Jilly Marsons collection. Will swap for C64 or Amiga for cartridges. Also wanted good unexpanded title software. Tel: 0208 730246.

CALLING C64 64 users. Have you got a lot of old titles, why not swap them to: P. Penfold, 20 Penfold Close, Didsbury, M16 8EF or phone: 061-336 8000. All will get replied to.

FOR TRADE

ALL YOU PEOPLE out there who have programs for the C64 please send to: C. Stevenson, 121 Middle Road, Broughby Ferry, Cheshire, England CH6 2EU or Tel: 0865 88644. All good programs and get myself! Paul.

WANTED: COMMODORE 64 and 128 154 unexpanded. Also Commodore 64 and 128 Plus/Plus 128 154 for sale. Offers invited. Tel: 0642 79187 or 0892 730246.

WANTED: Jilly Marsons collection. Will swap for C64 or Amiga for cartridges. Also wanted good unexpanded title software. Tel: 0208 730246.

SMALL C64 USERS group would like to swap software and other Commodore items for other Commodore users. Please send list of software and hardware with listing of price offered. Please send to: Commo User Connection, 12-13 Little Newport Street, London WC2R 3LD, Tel: 01-830 5626.

WANTED: PC STUFF 2 for Commodore 64. Want to swap. Also 128 154. Contact David on 0870 700080 or write to David Stevens, 118 Lark Hill Rd, Farnham, West Yorkshire WF4 4PF. All offers considered. Please enclose sum.

THE POPULAR Amiga and PC users' magazine. Join a rapidly growing list of satisfied game players. For latest edition, send £1, UK and Eire — £1.20, Eurostar or £1.80 elsewhere. N. Glasgow Street, Gorton, Manchester M18 8PU.

WANTED: C64 64 for Commodore 64. Want to swap working version. Tel: Michael 0808 6826215.

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Pressing problem

I WAS interested to read the Answer Back reply to the query about the moving of keyboard matrix values. Here, I thought, is the answer to a fairly common puzzling one. I have a game, Football Wizard, which features two "flippers", one operated by the left shift key and one by the right. I tried PEEKING and PRINTING 201, but some keys give no result, including the SHIFT keys. How do they decide which key is being pressed to operate a "flipper"?
 P. J. Marshall
 Gloucester
 Gloucs

THE SHIFT KEYS are detected by PEEK\$HDLR=1, but this just will not distinguish between left and right keys. On the Vic 20 it is easy to detect the left shift:
 10 GOSUB 60
 20 IF PEEK\$HDLR<>200
 THEN 10
 30 PRINT "LEFT SHIFT
 DETECTED!"

This does not work on the 64, so the detection of the left shift key requires a machine code routine. The 64's keys are wired into a matrix of eight rows and eight columns. These are scanned using two loops, \$B000 and \$B010. The act of pressing a key generates \$1 into a row value which can be detected by the appropriate routines.

Right to left

FOLLOWING the procedure in the Programmers Reference Guide I have created a Hebrew character set in the 64, but two problems have come up. Firstly, since Hebrew is written from right to left, how can I programme the cursor so that it moves in the same direction? Secondly, how can I make the programmable characters print out on the MP2001 printer?

Dr D. Warner
 Dan

THE NECESSARY machine code routines would be much

too complex to print here, but you might like to contact AEL Software, 1 Sheepfold Road, Southborough, Tonbridge, Kent, who have produced a cartridge which allows the 64 to operate in ASCII/English. Perhaps they are working on one for Hebrew as well. See the next letter for some more advice.

Dot values

I HAVE A 64 and an MP2001 printer. Is it possible to design a new character set to view on the screen then copy out to the printer?
 E. Nathan
 Plymouth
 Devon

MP2001 uses CHROUT to put the MP2001 into graphic mode. In this mode, the dot pattern of characters to be printed can be defined as a dot matrix, that is an column of seven dots. Add 128 to the value for each column; for example, where A\$="A", are the dot values required for the first row of the character:
 10 OPEN 4,4
 20 HOME 1 = 1 TO 7
 30 PRINT A\$+CHR(128)
 40 END

50 PRINT #4,CHR(255-")
 60 END your own program would repeat for seven rows for each character

51 PRINT #4,CHR(255)
 6014 returns to normal text mode
 70 CLS:4
 80 END
 90 DATA Radulated

MP2001 uses numerical values

The above would be used in conjunction with a screen drawing program, an example of which can be found in Bruce Grey's book *Programming the 64*.

Baby brother

I HAVE a 64 connected to a Brother DP211 printer with a Stock RS-232 interface and cables. I have had no luck getting the EPZ21 to print,

even after following all the instructions from the EPZ21 software and the Stock interface manual. When it is all connected, I have tried to use "Mode 0001" but nothing happens. Can you advise me how to make the system operate?

W. Carter
 Kenosha
 Wisconsin

YOU DON'T say whether your system needs other software, or even whether the EPZ21 works directly. Try OPEN 4,4:CMD 4:LSL followed by PRINT #4:CLOSE 4. This will let a program to memory directly to the printer. If there is no



reaction to the above, then your equipment is faulty. If this routine does work, but you still cannot get the system to work with the software, then either the software is not designed to work with non-Commodore printers (check the manual) or the contents is faulty.

D. R. Mathews

Acton 2

Southgate

YOU SHOULD have been able to print this out — just POPEN 3,000,PRINT"ABCD";2. If you have difficulty getting your local books shop to order books, then it's always possible to get in touch with the publishers directly. You can get addresses from the *Directory of Books in Print*, which is kept behind the counter at most good bookstores.

Letter perfect

I HAVE A 64, the disk unit, Philips microfloppy monitor and Shima CP80 printer, the latter used processing with BASIC and database management with Superbase interface. All has been well up to now, except that the Shima always prints a "T" skip over the perforation on continuous stationary, regardless of the setting of the DHF switch within the printer. How can I transmit a control code to the printer to make it omit the "skip"? I have been unable to get the 64 to print out hard copy with my own program listings. Do I need a special font?

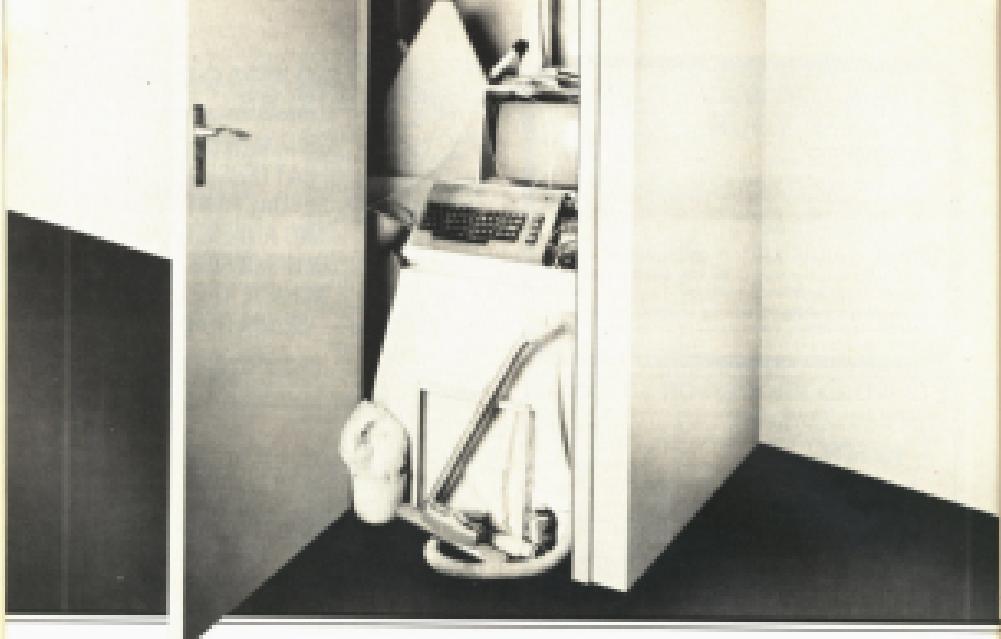
J. Foster
 Wimborne
 Dorset

THE CONTROL code required to omit the skip is ESCAPE 6, which is sent by CHROUT 29 CHR\$179. As you use a continuous interface with the Silver Reed, then you already have a reliable link. You can buy the necessary串行端口連接器 software from Microgen or ? Cylindrical Close, Bournham Woods, Hemel Hempstead, Herts HP2 8RS, the Printlink 2 software costs around £8, and you should specify the type of printer you're using. The software does not use any basic memory, and is therefore compatible with any basic program, two do not say which interface you use with the Shima CP80, if it is CP/M IEEE compatible then you will also need a lead costing around £15 for this printer.

Books in print

I HAVE recently purchased a second hand Vic 20 + 16K, and would appreciate answers to a couple of questions. To switch on lower case within your programs you PEEK 160101 and SET decimal of 160 for upper case. This of then for a 16K memory, but does not work for 16K. How can this be carried out with 16K?

I am also having trouble writing books I want regarding the Vic 20 as both my local big bookshops say they are unprofitably cheap being on their distribution lists. Can you suggest a good place to order such books?



BRING YOUR 64

If your Commodore 64 is used to the latest software built in since you left your Commodore when you bought it, it's still! Hundreds of applications can be achieved with Hanvic's range of C64 products, both in MSX format and their office.

So when that idea has you thinking about getting back to the basics, bring your Commodore back to life.



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An introduction to Calc Result is given at the beginning of the book for the benefit of those not acquainted with this software. Its purpose is to give the reader a brief lesson on the use and construction of Calc Result.



卷二十一

Handle Data Base is a brand new software package. Simplest now. What is a data base? The term data base is a product of the computer age, but the idea of a data base is very old. The broadest definition of a data base is a method of storing information so that it is easy to recall or look up all the data.

There are other losses in your home and office already. The telephone directory is a good example of a static house example of a static house. An address book, a file box or anything else that is full of static is a static house.

For anything that you want to categorize - from your book collection to serial numbers of valuable items, to the names and addresses of your regular customers - the Database will take the折磨.

For those who want to use the

For those who like to use computers to package their attendances, there are a floating list and four different print programs included.

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Hansel Costa Blanca allows you to
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information so that an untrained



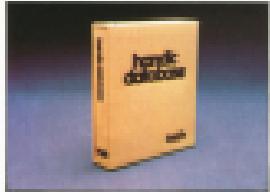
number of baselines can be used. Handby Data Base is easy to use and understand as the menus are designed for people who don't have much experience with computers and databases.

In good hands, the new book provides superb State-Wide, City, and County Telephone or Telephone and City Number Indexes.



YOU can now buy them and the whole range of "off the shelf" Hamlet products by mail. If you're not near a Hamlet dealer, all you have to do is tick the boxes and send in your remittance. You can also send in the copy. (Or even a photocopy!) For more information, or if you have any questions, call Hamlet (we'll just phone us on our "toll free" number below). We also offer a selection of disk and cartridge based software, disk based games, expansion units, an IEEE-488 interface, modems etc. All the old, plus headphones, accessories for the VIC-20, Commodore 6000, 4000, 6500 and 6000+, and soft were support for 6400+ and compatibles.

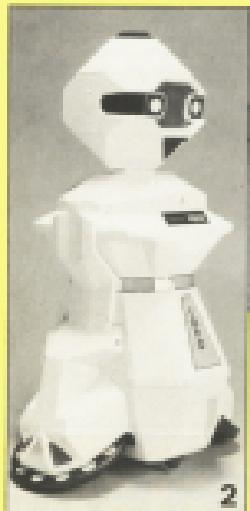
Don't forget we offer free postage and packaging and a 14 day money-back guarantee, so if you ever bring your *Conqueror* to a travel shop to measure it give us a ring . . . and let *Holiday Range* give you the help you need.



QUIT *of the* CLOSET

The latest Box of tricks

The Box, from Prototonics, is a home robotics interface for the 64 which allows you to control any mains powered appliance or DC system — and all you have to do to win one is to enter our simple contest!



1) What popular TV series featured the robot shown in picture one?

2) Which award-winning science-fiction author invented the Three Laws of Robotics?

3) What alternative name is often applied to computer-controlled model-driven buggies?



HOW can you make your 64 control the outside world? You need THE BOX! THE BOX is a control device which needs no knowledge of electronics or programming to operate — used with your 64, THE BOX can control lighting, heating, buggies, model railways, coffee makers — anything electrical you can think of.

So how's it done? THE BOX, developed by Prototonics, has eight indicator lights, two sets of four low voltage front sockets, a mains lead and an edge connector to the 64. Along the back are four IEC mains outlets, which match plugs supplied with the BOX.

To use a buggy with THE BOX, you just load the tape or click-based buggy software, and enter a set of movement commands with a joystick and the Function keys. This set of movements can be repeated as often as you like, with the indicator lights on THE BOX showing you which buggy command lines are activated. If you don't have a buggy — don't despair! THE BOX's manual includes instructions on controlling a cheap and reliable pig-device based on DC motors.

Appliances

The ROBOT HOME software enables you to control up to eight electrical appliances or lights on a day-to-day basis. The software allows you to program up to fifty control actions in any one day, spread over the eight control points. Up to ten different patterns (tapes) can be preprogrammed and stored for later use. You could, for instance, use THE

BOX to make it appear that your unoccupied house was, in fact, full of life — lights could go on and off, record players start and stop, any domestic or appliance switch flick on, off, or even... "The Box gives you all the right connections because..."

Controls

Given the instructions in the manual, a good BASIC programmer could even write his own software for THE BOX — you could control model railway layouts, Scalextric, garden appliances, alarms — whatever you like. The uses are only limited by your imagination.

Prototonics' next project, THE SENSOR, can be used alone or in conjunction with THE BOX, in your post-dictated interaction with the outside world. THE SENSOR can sense heat or light via a digital basis, with user-programmable threshold levels. Sound is sampled by frequency, and may be programmed to respond on four levels. THE SENSOR can be connected to THE BOX using a full interface software package.

For more details on THE BOX and THE SENSOR, contact Prototonics at 10 Queen Street, Newmarket, Essex.

For those of you who can't wait to get your hands on THE BOX, we have three or give away copies of Harbison's Distribution.

All you have to do is win one of these great prizes — each worth £99.95 — is to answer the three simple questions about robotics, above, and complete the tie-breaker.

When you've answered the questions, complete this tie-breaker sentence in an apt, original and amusing manner in fifteen words or less: "The Box gives you all the right connections because..."

Put your entry with your name and address on a POSTCARD on the back of a sealed envelope, and send it to THE BOX Competition, Commander Marconi, 1200 Lime Street, Liverpool L2 2AS TEL: 0151 226 1775 to arrive by the last working day of August. Winners will be announced in the October issue. All normal competition rules apply ■

Previous winners:

The fifty winners of the Shadowline contest in the July issue have now been adopted. Each wins a special Shadowline team T-shirt from Beyond, which will be winging its way to the winners soon.

Ten lucky prize-winners get Airwolf games, watches and posters courtesy of Elite Software, as a result of our July contest. They are: Don Morris, London; R Philip Ayling, T. Mills, London; M Buchanan, London; R Bonner, Glasgow; S McCutche, Newark; A Davies, Bodley; R Gange, Darlington; C Garbett, Birstall; and K Wilson, Cheadle.

The runner-up gets the game and the poster; J Hall, London; A S Bowden, Leeds; S L Lashman, Paisley; S Cox, Bristol; P Wield, BPPO 86; I Payne, Hellens; T Robson, Stainton; D Cartwright, Plymstock; T Galley, Bisham; R Armstrong, Headley.

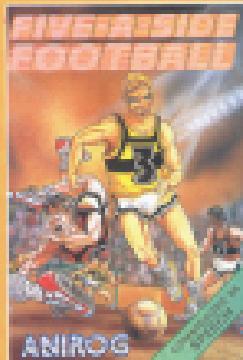
FIVE-AP-SIDE

Cheering-whistling-shouting crowd with their banners aloft set the scene for a lively game of FIVE A SIDE played at a fast and furious pace where the skills of passing and shooting are as essential as speed. Match your skills against the computer at three skill levels or play against another opponent.

Before the kick off, the crowd give their enthusiastic support by singing "Here We Go".

Penalty shoot-outs are one of many other features of this game.

£19.95 £5.95 (40% off) £19.95 (25% off)

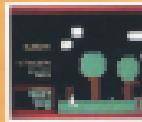
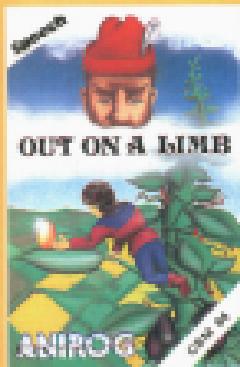


OUT ON A LIMB

FEE - FIE - FO - FUM

I smell the blood of an Englishman.

HA - HA - HA - HA - HA!

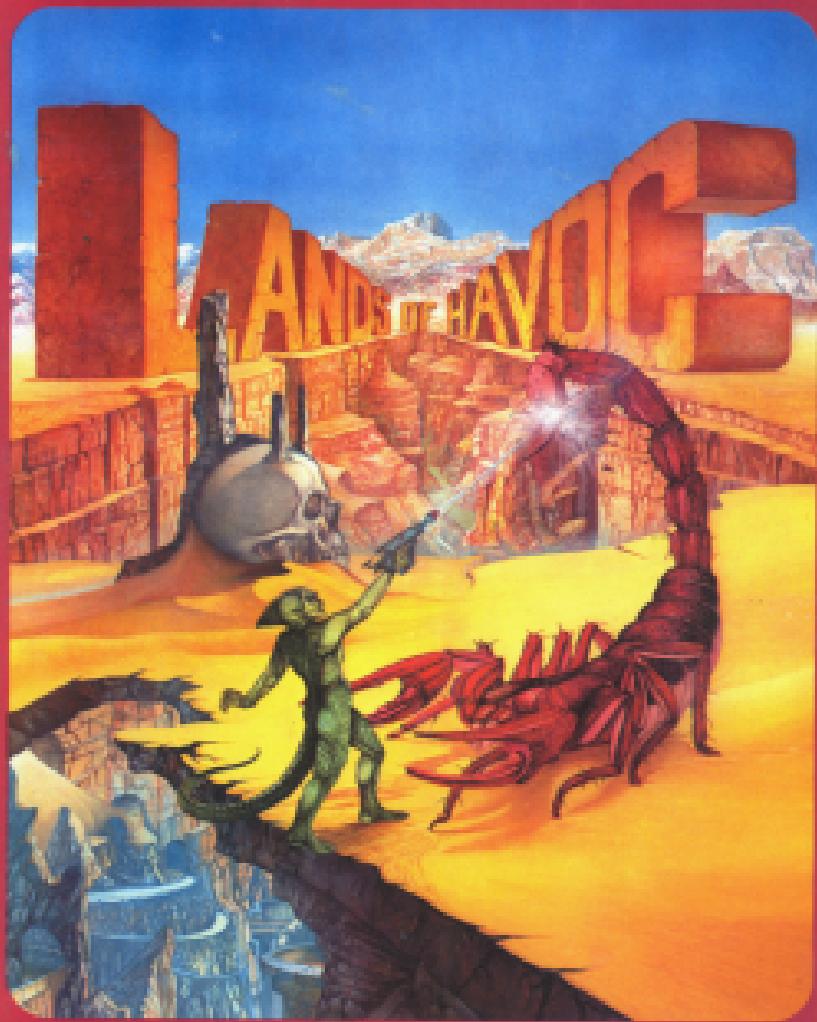


The stunning speech effects in the above programs were generated by ANROG/COMVox VOICE MASTER

Contact Ansys for further information.

ANIROG

COMMODORE 64



MICRODEAL